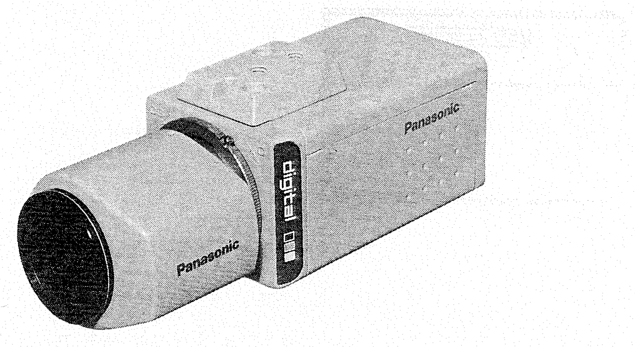
ORDER NO.AVS9511060C8

Service Manual

CCTV Cameras

WV-BP510/WV-BP514



SPECIFICATIONS

Pick-up Device:	753 (H) x 582 (V) pixels, Interline Transfer CCD
Scanning Area:	4.8 (H) x 3.6 (V) mm (Equivalent to scanning area of 1/3" pick-up tube)
Scanning:	625 lines / 50 fields / 25 frames
Horizontal:	15.625 KHz
Vertical:	50.00 Hz
Synchronization:	Internal, Line-locked, External (VS) or Multiplexed Vertical Drive (VD2) Selectable
Video Output:	1.0 Vp-p PAL composite 75 ohms / BNC connector
Horizontal Resolution:	570 lines
Signal-to-Noise Ratio:	46 dB (AGC OFF)
Minimum Illumination:	0.02 lux (0.002 footcandle) at F0.75 [Equivalent to 0.08 lux (0.008 footcandle) at F1.4]
Gain Control:	Selectable AGC ON or OFF (SET UP MENU)
Aperture:	Set Variable (SET UP MENU)
Electronic Light Control:	Equivalent to continuous variable shutter speed between 1/50 sec. and 1/10000 sec.
Back Light Compensation:	Selectable Preset On or Off (SET UP MENU)
Electronic Shutter Speed:	Selectable 1/50 (OFF), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000.
Lens Mount:	Selectable C-mount or CS-mount
ALC Lens:	Selectable DC or Video
Ambient Operating Temperature:	−10°C - +50°C (14°F - 122°F)
Ambient Operating Humidity:	Less than 90%
Power Source:	WV-BP510/A, B, G: 220 - 240V AC 50 Hz WV-BP514: 24V AC 50 Hz
Power consumption:	WV-BP510/A, B, G: 5.0W WV-BP514: 3.8W
Dimensions (without lens):	67 (W) x 55 (H) x 123 (D) mm [2-5/8" (W) x 2-3/16" (H) x 4-13/16" (D)]
Weights (without lens):	WV-BP510/A, B, G: 0.65kg (1.4 lbs.) WV-BP514: 0.50kg (1.1 lbs.)

Weights and dimensions indicated are approximate.
Specifications are subject to change without notice.

Panasonic

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICEING TO QUALIFIED SERVICE PERSONNEL.

This symbol wams the user that uninsuland voltage within the unit may have suificient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

⚠ This symbol alerts the user that impotant literature concerning the operation and maintenance of this has been included. Therefore, it should be read carefully in order to avoid any problems.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are indicated by the ⚠ mark on the schematic diagram and the replacement parts list. It is essential that these critical parts should be repleced with manufacture's specified parts to prevent shock, fire, or other hazards.
Do not modify the original design without permission of manufacture.

STANDARD ACCESSORIES

Body Cap	1 pc.
ALC Lens Connector (YFE4191J100)	1 pc.

OPTIONAL ACCESSORIES

Lenses : WV-LA2.8, WV-LA6B2, WV-LA12B2, WV-LA18, WV-LA36, WV-LA4510, WV-LA608, WV-LA1208, WV-LA4R5C3A, WV-LA9C3A, WV-LA210C3, WV-LA408C3, WV-LA908C3, WV-LZ81/6A, WV-LZ81/10, WV-LZ83/6, WV-LZ61/10, WV-LM4R5A,WV-LM6B2, WV-LM12B2, WV-LF6, WV-LF12, WV-LF4R5C3A, WV-LF9C3A

CONTENTS

MAJOR OPERATING CONTROLS AND THEIR FUNCTION 1
CIRCUIT DESCRIPTION 3
ABOUT YOUR COMPUTER 14
ADJUSTMENT PROCEDURE 15
LOCATION OF TEST POINTS AND ADJUSTMING CONTROLS 32
APPEARANCE OF IC, TRANSISTOR AND DIODE 33
CHIP COMPONENTS 34

BLOCK DIAGRAM

  DRIVE BOARD 35
  DIGITAL BOARD 36

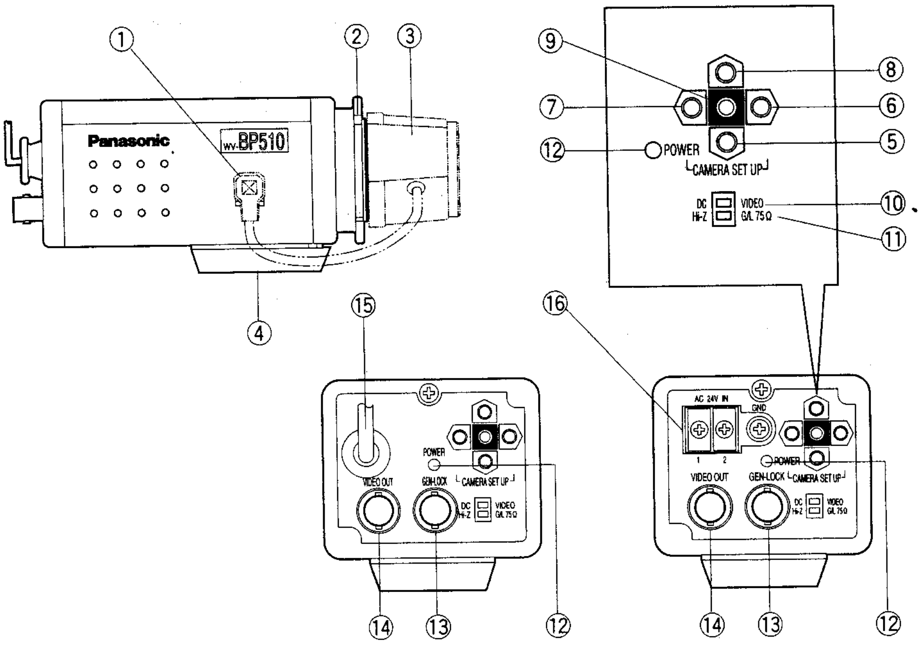
SCHEMATIC DIAGRAM

  ALC BOARD 37
  SENSOR BOARD 38
  DRIVE BOARD 40
  DIGITAL BOARD 41
  POWER BOARD (WV-BP510) 43
  POWER BOARD (WV-BP514) 44
  REAR BOARD (WV-BP510) 45
  REAR BOARD (WX-BP514) 46

CONDUCTOR VIEW

  ALC BOARD 37
  SENSOR BOARD 38
  DRIVE BOARD 39
  DIGITAL BOARD 42
  POWER BOARD (WV-BP510) 43
  POWER BOARD (WV-BP514) 44
  REAR BOARD (WV-BP510) 45
  REAR BOARD (WX-BP514) 46
EXPLODED VIEW 47
REPLACEMENT PARTS LIST 49

MAJOR OPRATING CONTROLS AND THEIR FUNCTION



WV-BP510 WV-BP514

(1) Auto Iris Lens Connector

This connector supplies the power and either video signal or DC control signal to the auto iris lens.

A 4-pin male connector to be mated with the this female connector is supplied as a standard accessory (Part No. YFE419J100).

(2) Flange-back Adjusting Ring

This is used to adjust the back focal length or picture focus by rotating this ring to clockwise for C-mount lens or counterclockwise for CS-mount lens.

CAUTIONS:

1. Always set this ring to fully clockwise before mounting the lens to prevent damage of inner glass or CCD image sensor.
2. Do not turn this ring too much to counterclockwise when the C-mount lens is mounted as this could damage the inner glass or CCD image sensor.

(3) Lens (Option)

(4) Camera Mounting Screw Hole

This threaded hole (1/4" - 20) is used to mount the camera onto a mounting bracket or tripod.

(5) Down Switch (V)

This switch is used to move the blinking position (cursor) in the down direction

(6) Right Switch (>)

This switch is used to move the cursor in the right direction.

(7) Left Switch (<)

This switch is used to move the cursor in the left direction.

(8) Up Switch (Λ)

This switch is used to move the cursor in the up direction.

(9) Set Switch

The mode selection is enabled by pressing this switch.

(10) Lens Selection Switch (VIDEO/DC)

This switch is used to select the type of auto iris control signal to be supplied to the lens from the Auto Iris Lens Connector.

DC: Choose this position when an auto iris lens that requires a DC control signal is mounted on the camera. See pages 9, 10, 11 and 12 for a list of these lenses.

VIDEO: Choose this position when an auto iris lens that requires a video control signal is mounted on the camera.
Examples of this type of lens includes WV-LA8B, WV-LA16B, WV-LA25B and the WV-LA50B.

(11) Gen-lock Termination Switch (G/L 75 Ω, Hi-Z)

When looping through a gen-lock video input signal, set this switch to the Hi-Z position. In all other cases, set this to the 75Ω position.

(12) Power indicator

(13) Gen-lock Input Connector (GEN-LOCK)

A composite B/W or colour, 1.0 Vp-p/75 ohms video signal, black burst, 0.3 Vp-p/75 ohms signal or composite sync signal should be supplied to this connector for external synchronization.

(14) Video Output Connector (VIDEO OUT)

A 1.0 Vp-p/75 Ω composite video signal is provided at this connector.
Whenever the multiplexed vertical drive (VD2) signal is supplied to this connector, the camera synchronization mode is automatically set to Vertical Drive Lock.

(15) Power Cord

(16) AC 24V In Terminal (AC 24V IN)

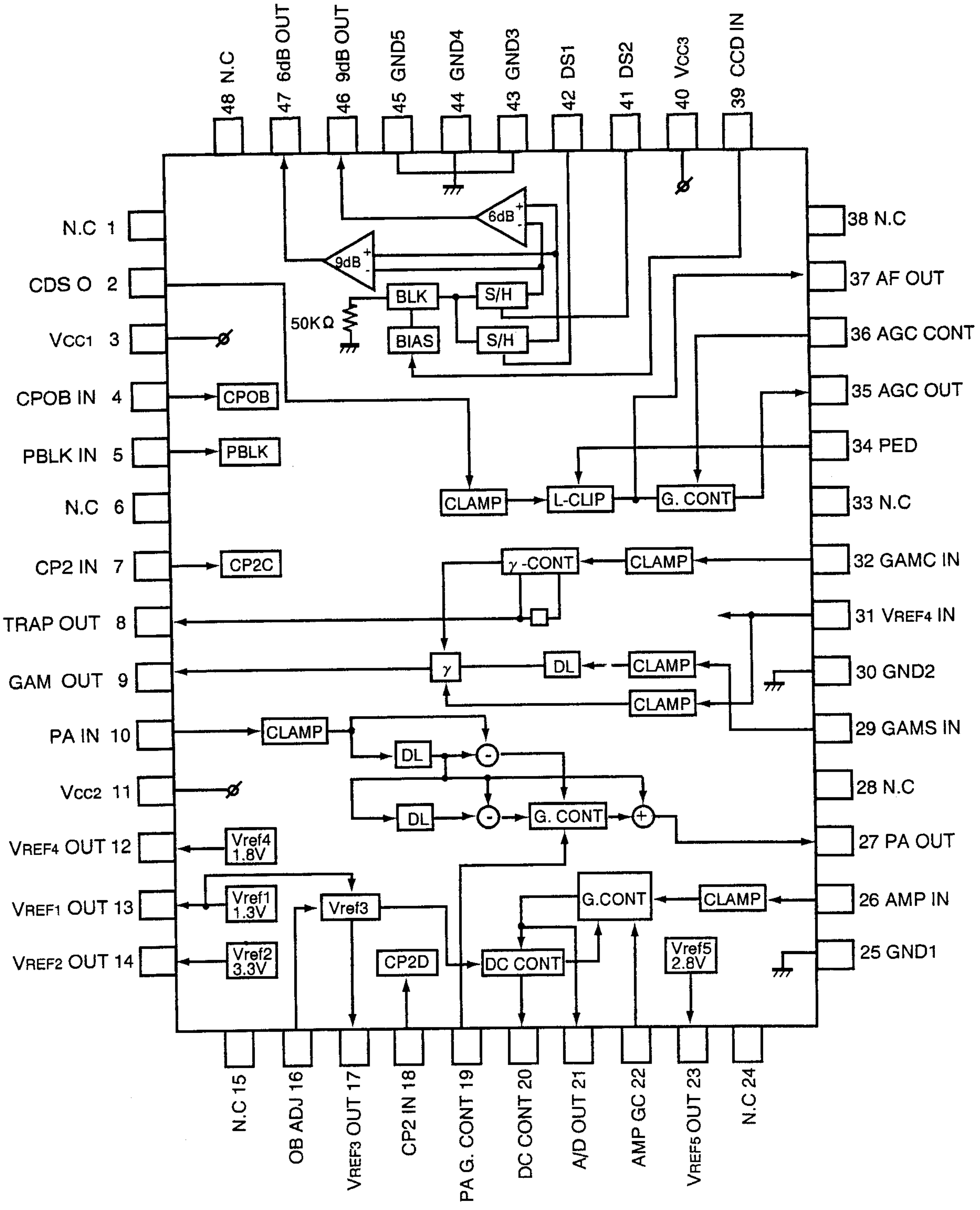
This terminal accepts 24V AC power source (19.5V - 28V). Be sure to connect grounding lead to the GND terminal.

CIRCUIT DESCRIPTION

IC Description

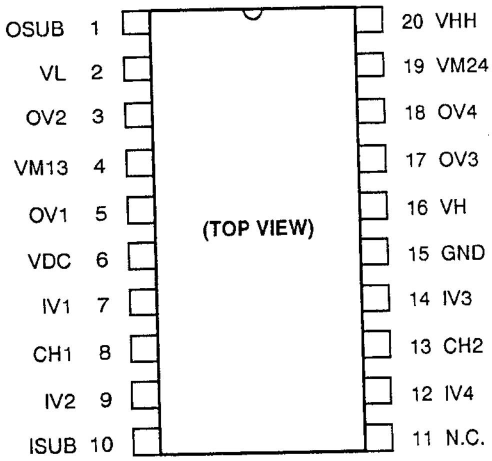
1. Drive Board

1.1. IC4 on the Drive Board is using the CDS+AGC, GAMMA IC NN2038FAQ.
Description of this IC is as follows:


48 N.C
47 6dB OUT
46 9dB OUT
45 GND5
44 GND4
43 GND3
42 DS1
41 DS2
40 VCC3
39 CCD IN
N.C 1
CDS O 2
VCC1 3
CPOB IN 4
PBLK IN 5
N.C 6
CP2 IN 7
TRAP OUT 8
GAM OUT 9
PA IN 10
VCC2 11
VREF4 OUT 12
VREF1 OUT 13
VREF2 OUT 14
38 N.C
37 AF OUT
36 AGC CONT
35 AGC OUT
34 PED
33 N.C
32 GAMC IN
31 VREF4 IN
30 GND2
29 GAMS IN
28 N.C
27 PA OUT
26 AMP IN
25 GND1
N.C 15
OB ADJ 16
VREF3 OUT 17
CP2 IN 18
PA G. CONT 19
DC CONT 20
A/D OUT 21
AMP GC 22
VREF5 OUT 23
N.C 24
6dB
9dB
BLK
S/H
S/H
BIAS
50KΩ
CPOB
PBLK
CP2C
CLAMP
L-CLIP
G. CONT
γ-CONT
CLAMP
γ
DL
CLAMP
CLAMP
CLAMP
DL
DL
G. CONT
Vref4 1.8V
Vref1 1.3V
Vref3
Vref2 3.3V
CP2D
DC CONT
G.CONT
CLAMP
Vref5 2.8V

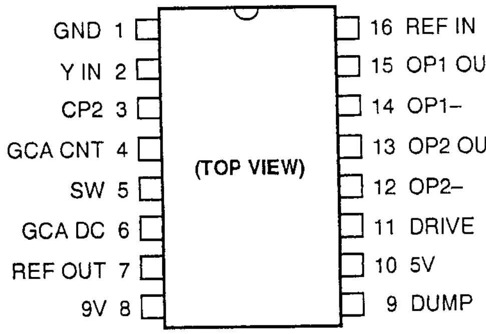
Pin	Name	I/O	Description
1	N.C.	–	Non Connection
2	CDS OUT	O	CDS-OUT Signal input terminal
3	VCC1	–	Power Supply Terminal
4	CPOB IN	I	CPOB Signal input terminal
5	PBLK IN	I	Pre Blanking pulse input terminal
6	N.C	–	Non Connection
7	CP2 IN	I	Clamp pulse input terminal
8	TRAP OUT	O	TRAP signal output terminal
9	GAM OUT	O	γ signal output terminal
10	PA IN	I	Pre Apature signal input terminal
11	VCC2	–	Power supply terminal
12	VREF4 OUT	O	Reference voltage output terminal
13	VREF1 OUT	O	
14	VREF2 OUT	O	
15	N.C.	–	Non connection
16	OB ADJ	I	OB signal adjusting terminal
17	VREF3 OUT	O	Reference voltage output terminal
18	CP2 IN	I	Clamp pulse input terminal
19	PA G. CONT	I	Pre Apature Gain control terminal
20	DC CONT	O	DC control signal output terminal
21	A/D OUT	O	A/D OUT signal output terminal
22	AMP G.C	I	Amplifier Gain control terminal
23	VREF5 OUT	O	Reference voltage output terminal
24	N.C.	–	Non Connection
25	GND	–	Ground terminal
26	AMP IN	I	Amplifier input terminal
27	PA OUT	O	Pre Apature signal output terminal
28	N.C.	–	Non connection
29	GAMS IN	I	γ signal input terminal
30	GND2	–	Ground terminal
31	VREF4 IN	I	Reference Voltage input terminal
32	GAMC IN	I	γ signal input terminal
33	N.C	–	Non connection
34	PED	I	Pedestal Level adjusting terminal
35	AGC OUT	O	AGC signal output terminal
36	AGC CONT	I	AGC Control terminal
37	AF OUT	O	AF Signal output terminal
38	N.C.	–	Non Connection
39	CCD IN	I	CCD Signal input terminal
40	VCC3	–	Power supply terminal
41	DS2	O	Pulse output terminals for CDS
42	DS1	O	
43	GND3	–	Ground terminal
44	GND4	–	
45	GND5	–	
46	9dB OUT	O	CDS signal (9dB) output terminal
47	6dB OUT	O	CDS signal (6dB) output terminal
48	N.C	–	Non connection

1.2. IC1 on the Drive Board is using the CCD Vertical Drive IC MN3112SA.
Description of this IC is as follows:


OSUB 1
VL 2
OV2 3
VM13 4
OV1 5
VDC 6
IV1 7
CH1 8
IV2 9
ISUB 10
(TOP VIEW)
20 VHH
19 VM24
18 OV4
17 OV3
16 VH
15 GND
14 IV3
13 CH2
12 IV4
11 N.C.

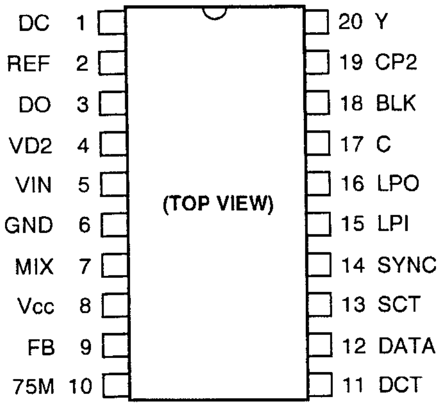
Pin	Name	I/O	Description
1	OSUB	O	Substrate signal output terminal.
2	VL	–	VL voltage supply terminal.
3	OV2	O	Vertical Pulse 2 output terminal.
4	VM13	I	VM13 voltage supply terminal.
5	OV1	O	Vertical Pulse 1 output terminal.
6	VDC	–	Power supply.
7	IV1	I	Vertical Pulse 1 input terminal.
8	CH1	I	CH1 signal input terminal.
9	IV2	I	Vertical Pulse 2 input terminal.
10	ISUB	I	Substrate signal input terminal.
11	N.C.	–	Non Connection.
12	IV4	I	Vertical Pulse 4 input terminal.
13	CH2	I	CH2 signal input terminal.
14	IV3	I	Vertical Pulse 3 input terminal.
15	GND	–	Ground terminal.
16	VH	–	VH voltage supply terminal.
17	OV3	O	Vertical Pulse 3 output terminal.
18	OV4	O	Vertical Pulse 4 output terminal.
19	VM24	–	VM24 voltage supply terminal.
20	VHH	–	VHH voltage supply terminal.

1.3. IC3 on the Drive Board is using the ALC Control IC YWC5023068E1.
Description of this IC is as follows:


GND 1
Y IN 2
CP2 3
GCA CNT 4
SW 5
GCA DC 6
REF OUT 7
9V 8
(TOP VIEW)
16 REF IN
15 OP1 OUT
14 OP1–
13 OP2 OUT
12 OP2–
11 DRIVE
10 5V
9 DUMP

Pin	Name	I/O	Description
1	GND	–	Ground terminal.
2	Y IN	I	Luminance signal input terminal.
3	CP2	I	Clamp Pulse input terminal.
4	GCA CNT	I	GCA Control signal input terminal.
5	SW	I	ALC Level Control signal input terminal.
6	GCA DC	I	GCA DC input terminal.
7	REF OUT	O	Reference signal output terminal.
8	9V	–	9V power supply terminal.
9	DUMP	O	Dumper signal output terminal.
10	5V	–	5V power supply terminal.
11	DRIVE	O	Drive signal output terminal.
12	OP2–	I	Operational Amp. 2 inverting input terminal.
13	OP2 OUT	O	Operational Amp. 2 output terminal.
14	OP1–	I	Operational Amp. 1 inverting input terminal.
15	OP1 OUT	O	Operational Amp. 1 output terminal.
16	REF IN	I	Reference signal input terminal.

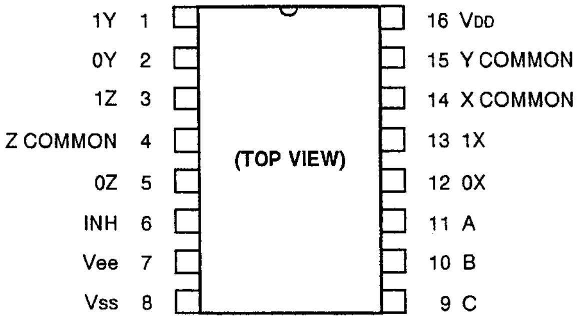
1.4. IC5 on the Drive Board is using the Video Output IC YWC5020074E1.
Description of this IC is as follows:


DC 1
REF 2
DO 3
VD2 4
VIN 5
GND 6
MIX 7
Vcc 8
FB 9
75M 10
(TOP VIEW)
20 Y
19 CP2
18 BLK
17 C
16 LPO
15 LPI
14 SYNC
13 SCT
12 DATA
11 DCT

Pin	Name	I/O	Description
1	DC	I	DC signal input terminal.
2	REF	O	Reference voltage (2V) output terminal.
3	DO	O	Data output terminal.
4	VD2	O	VD2 signal output terminal.
5	VIN	I	VIN signal input terminal.
6	GND	–	Ground terminal.
7	MIX	O	MIX signal output terminal.
8	Vcc	–	Power supply terminal.
9	FB	I	Feedback signal input terminal.
10	75M	O	Video signal output terminal.
11	DCT	I	DCT signal input terminal.
12	DATA	I	Data input terminal.
13	SCT	I	SCT signal input terminal.
14	SYNC	I	Sync signal input terminal.
15	LPI	I	Low Pass Filter input terminal.
16	LPO	O	Low Pass Filter output terminal.
17	C	I	Chroma signal input terminal.
18	BLK	I	Blanking Pulse input terminal.
19	CP2	I	Clamp Pulse input terminal.
20	Y	I	Luminance signal input terminal.

2. Digital Board

2.1. IC1 on the Digital Board is using the Triple 2-ch Analog Multiplexers/Demultiplexers IC YWMC14053BF.
Description of this IC is as follows:

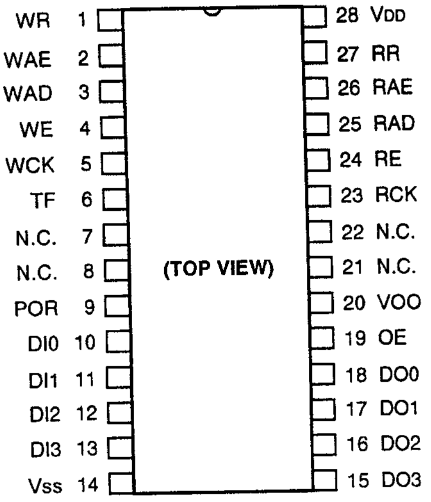

1Y 1
0Y 2
1Z 3
Z COMMON 4
0Z 5
INH 6
Vee 7
Vss 8
(TOP VIEW)
16 VDD
15 Y COMMON
14 X COMMON
13 1X
12 0X
11 A
10 B
9 C

Truth Table

INHIBIT	C	B	A	X COMMON	Y COMMON	Z COMMON
L	L	L	L	0X	0Y	0Z
L	L	L	H	1X	0Y	0Z
L	L	H	L	0X	1Y	0Z
L	L	H	H	1X	1Y	0Z
L	H	L	L	0X	0Y	1Z
L	H	L	H	1X	0Y	1Z
L	H	H	L	0X	1Y	1Z
L	H	H	H	1X	1Y	1Z
H	*	*	*	NONE	NONE	NONE

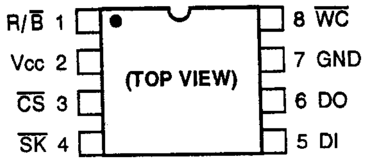
* : Don't care.

2.2. IC4 and IC5 on the Digital Board are using the 0.9M-Bit FIFO Field Memory IC MN4792S.
Description of this IC is as follows:

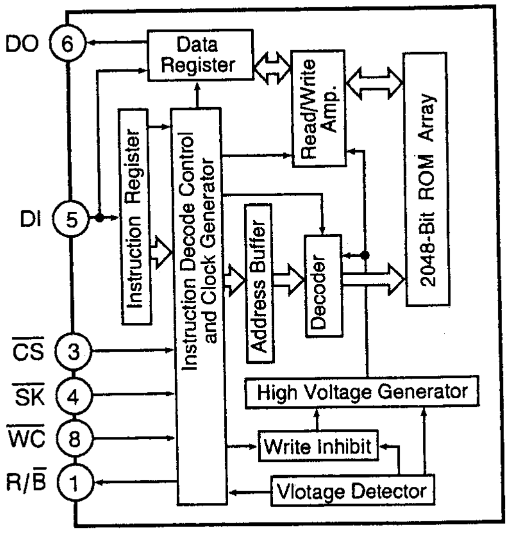

WR 1
WAE 2
WAD 3
WE 4
WCK 5
TF 6
N.C. 7
N.C. 8
POR 9
DI0 10
DI1 11
DI2 12
DI3 13
Vss 14
28 VDD
27 RR
26 RAE
25 RAD
24 RE
23 RCK
22 N.C.
21 N.C.
20 VOO
19 OE
18 DO0
17 DO1
16 DO2
15 DO3
(TOP VIEW)

Pin	Name	I/O	Description
1	WR	I	WR signal input terminal.
2	WAE	I	WAE signal input terminal.
3	WAD	I	WAD signal input terminal.
4	WE	I	Write Enable signal input terminal.
5	WCK	I	Write Clock Pulse input terminal.
6	TF	I	TF signal input terminal.
7	N.C.	–	Non connection.
8	N.C.	–	Non connection.
9	POR	I	POR signal input terminal.
10	DI0	I	Data input terminals. (4-Bit)
11	DI1	I	
12	DI2	I	
13	DI3	I	
14	Vss	–	Ground terminal.
15	DO3	O	Data output terminals. (4-Bit)
16	DO2	O	
17	DO1	O	
18	DO0	O	
19	OE	I	OE signal input terminal.
20	VOO	O	VOO signal output terminal.
21	N.C.	–	Non connection.
22	N.C.	–	Non connection.
23	RCK	I	Read Clock Pulse input terminal.
24	RE	I	Read Enable signal input terminal.
25	RAD	I	RAD signal input terminal.
26	RAE	I	RAE signal input terminal.
27	RR	I	RR signal input terminal.
28	VDD	–	Power supply terminal.

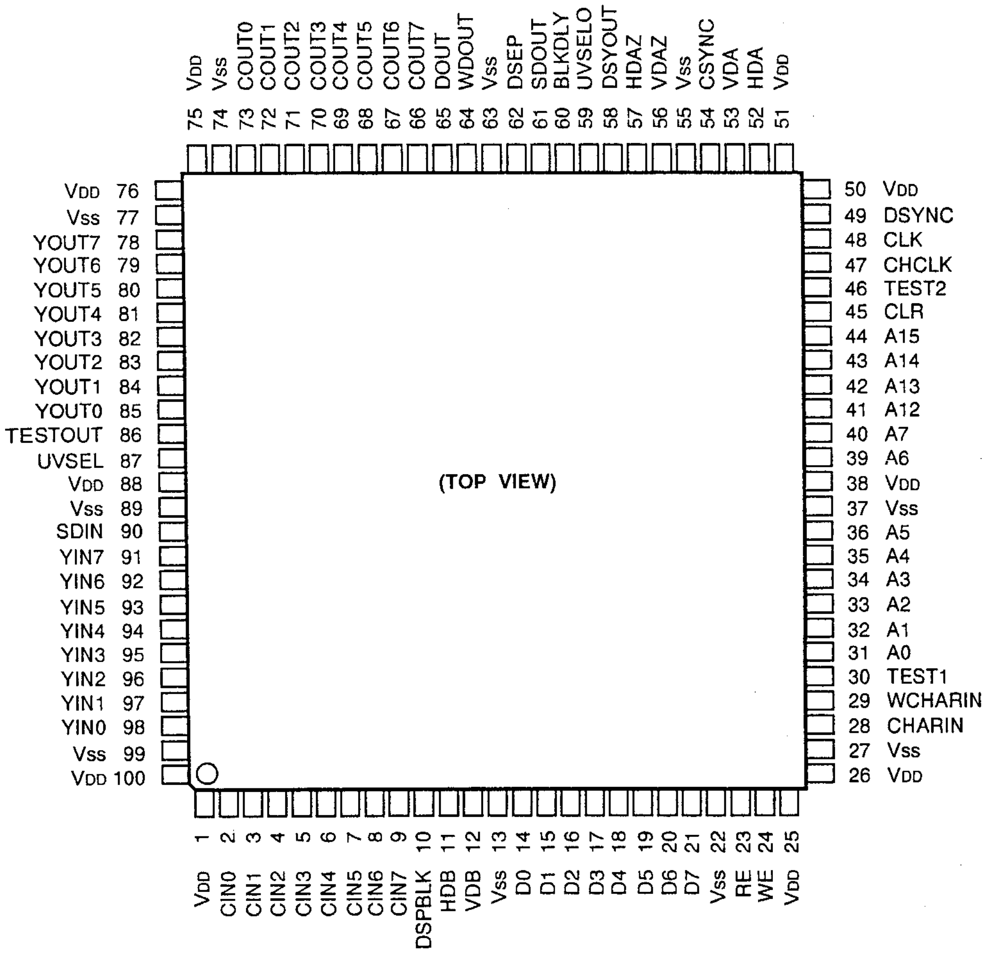
2.3. IC8 on the Digital Circuit Section of the Main Board is using the 2K (128 x 16-Bit) Serial EEPROM IC YWBR9020FE1.
Description of this IC is as follows:


$R/\overline{B}$ 1
Vcc 2
$\overline{CS}$ 3
$\overline{SK}$ 4
8 $\overline{WC}$
7 GND
6 DO
5 DI
(TOP VIEW)

Pin	Name	I/O	Description
1	$R/\overline{B}$	O	Ready/$\overline{\text{Busy}}$ Status signal output terminal.
2	Vcc	–	Power supply terminal.
3	$\overline{CS}$	I	Chip Select signal input terminal.
4	$\overline{SK}$	I	Serial Data Clock Pulse input terminal.
5	DI	I	Serial Data input terminal.
6	DO	O	Serial Data output terminal.
7	GND	–	Ground terminal.
8	$\overline{WC}$	I	Write Control signal input terminal.


DO 6
DI 5
$\overline{CS}$ 3
$\overline{SK}$ 4
$\overline{WC}$ 8
$R/\overline{B}$ 1
Data Register
Read/Write Amp.
2048-Bit ROM Array
Instruction Register
Instruction Decode Control and Clock Generator
Address Buffer
Decoder
High Voltage Generator
Write Inhibit
Vlotage Detector

2.4. IC6 on the Digital Board is using the Gate Array Logic IC YWL7A1219.
Description of this IC is as follows:


VDD 75
Vss 74
COUT0 73
COUT1 72
COUT2 71
COUT3 70
COUT4 69
COUT5 68
COUT6 67
COUT7 66
DOUT 65
WDOUT 64
Vss 63
DSEP 62
SDOUT 61
BLKDLY 60
UVSELO 59
DSYOUT 58
HDAZ 57
VDAZ 56
Vss 55
CSYNC 54
VDA 53
HDA 52
VDD 51
VDD 76
Vss 77
YOUT7 78
YOUT6 79
YOUT5 80
YOUT4 81
YOUT3 82
YOUT2 83
YOUT1 84
YOUT0 85
TESTOUT 86
UVSEL 87
VDD 88
Vss 89
SDIN 90
YIN7 91
YIN6 92
YIN5 93
YIN4 94
YIN3 95
YIN2 96
YIN1 97
YIN0 98
Vss 99
VDD 100
(TOP VIEW)
50 VDD
49 DSYNC
48 CLK
47 CHCLK
46 TEST2
45 CLR
44 A15
43 A14
42 A13
41 A12
40 A7
39 A6
38 VDD
37 Vss
36 A5
35 A4
34 A3
33 A2
32 A1
31 A0
30 TEST1
29 WCHARIN
28 CHARIN
27 Vss
26 VDD
1 VDD
2 CIN0
3 CIN1
4 CIN2
5 CIN3
6 CIN4
7 CIN5
8 CIN6
9 CIN7
10 DSPBLK
11 HDB
12 VDB
13 Vss
14 D0
15 D1
16 D2
17 D3
18 D4
19 D5
20 D6
21 D7
22 Vss
23 RE
24 WE
25 VDD

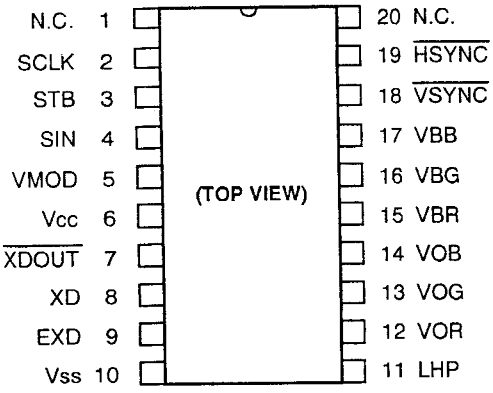
Pin	Name	I/O	Description
1	VDD	–	Power supply terminal.
2	CIN0	I	Chrominance Data input terminals. (8-Bit)
3	CIN1	I	
4	CIN2	I	
5	CIN3	I	
6	CIN4	I	
7	CIN5	I	
8	CIN6	I	
9	CIN7	I	
10	DSPBLK	I	Digital Blanking Pulse input terminal.
11	HDB	I	HD signal input terminal.
12	VDB	I	VD signal input terminal.
13	Vss	–	Ground terminal.
14	D0	O	Data output terminals. (8-Bit)
15	D1	O	

Pin	Name	I/O	Description
16	D2	O	Data output terminals. (8-Bit)
17	D3	O	
18	D4	O	
19	D5	O	
20	D6	O	
21	D7	O	
22	Vss	–	Ground terminal.
23	RE	I	Read Enable signal output terminal.
24	WE	I	Write Enable signal output terminal.
25	VDD	–	Power supply terminal.
26	VDD	–	Power supply terminal.
27	Vss	–	Ground terminal.
28	CHARIN	I	Character signal input terminal.
29	WCHARIN	I	Character signal input terminal.
30	TEST1	I	Test terminal.

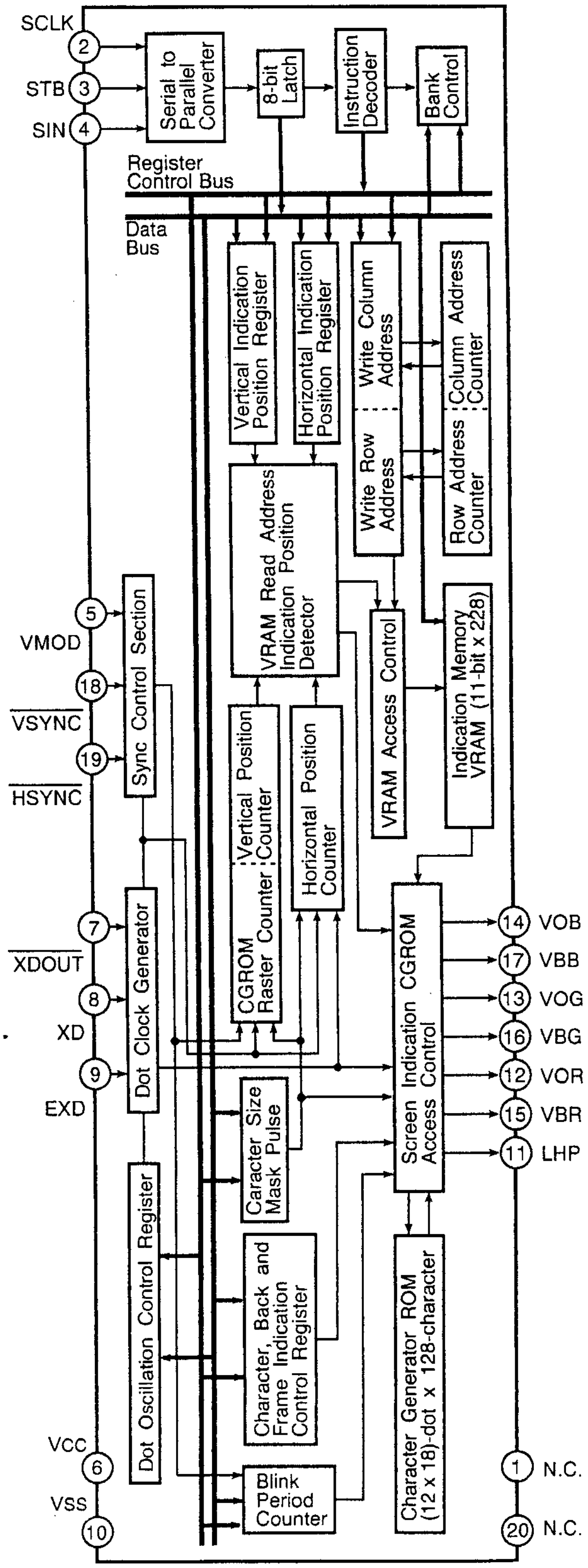
Pin	Name	I/O	Description
31	A0	I	Address signal input terminals.
32	A1	I	
33	A2	I	
34	A3	I	
35	A4	I	
36	A5	I	
37	Vss	–	Ground terminal.
38	VDD	–	Power supply terminal.
39	A6	I	Address signal input terminals.
40	A7	I	
41	A12	I	
42	A13	I	
43	A14	I	
44	A15	I	
45	CLR	I	Clear signal input terminal.
46	TEST2	I	Test terminal.
47	CHCLK	I	Clock Pulse input terminal.
48	CLK	I	Clock Pulse input terminal.
49	DSYNC	I	D-Sync signal input terminal.
50	VDD	–	Power supply terminal.
51	VDD	–	Power supply terminal.
52	HDA	I	HD signal input terminal.
53	VDA	I	VD signal input terminal.
54	CSYNC	I	Composite Sync signal input terminal.
55	Vss	–	Ground terminal.
56	VDAZ	O	VD signal output terminal.
57	HDAZ	O	HD signal output terminal.
58	DSYOUT	O	D-Sync signal output terminal.
59	UVSELO	O	UV Selection signal output terminal.
60	BLKDLY	O	Blanking Pulse output terminal.
61	SDOUT	O	SDOUT signal output terminal.
62	DSEP	O	DSEP signal output terminal.
63	Vss	–	Ground terminal.
64	WDOUT	O	WDOUT signal output terminal.
65	DOUT	O	DOUT signal output terminal.
66	COUT7	O	Chrominance Data output terminals. (8-Bit)
67	COUT6	O	
68	COUT5	O	
69	COUT4	O	
70	COUT3	O	
71	COUT2	O	
72	COUT1	O	
73	COUT0	O	
74	Vss	–	Ground terminal.
75	VDD	–	Power supply terminal.
76	VDD	–	Power supply terminal.

Pin	Name	I/O	Description
77	Vss	–	Ground terminal.
78	YOUT7	O	Luminance Data output terminals. (8-Bit)
79	YOUT6	O	
80	YOUT5	O	
81	YOUT4	O	
82	YOUT3	O	
83	YOUT2	O	
84	YOUT1	O	
85	YOUT0	O	
86	TESTOUT	O	Test terminal.
87	UVSEL	I	UV Selection signal input terminal.
88	VDD	–	Power supply terminal.
89	Vss	–	Ground terminal.
90	SDIN	I	SD signal input terminal.
91	YIN7	I	Luminance Data input terminals. (8-Bit)
92	YIN6	I	
93	YIN5	I	
94	YIN4	I	
95	YIN3	I	
96	YIN2	I	
97	YIN1	I	
98	YIN0	I	
99	Vss	–	Ground terminal.
100	VDD	–	Power supply terminal.

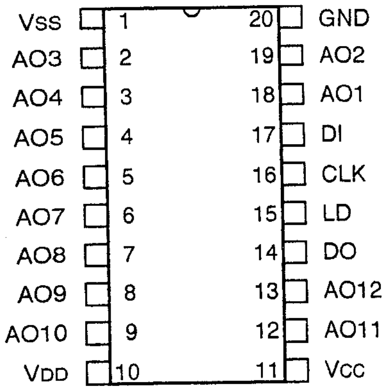
2.5. IC7 on the Digital Board is using the Character Generator IC MB90077PF104.
Description of this IC is as follows:


N.C. 1
SCLK 2
STB 3
SIN 4
VMOD 5
Vcc 6
XDOUT 7
XD 8
EXD 9
Vss 10
(TOP VIEW)
20 N.C.
19 HSYNC
18 VSYNC
17 VBB
16 VBG
15 VBR
14 VOB
13 VOG
12 VOR
11 LHP

Pin	Name	In/Out	Description
1	N.C.	–	Non Connection
2	SCLK	In	Serial Clock input terminal.
3	STB	In	Strobe Signal input terminal Serial Data should be read at rising edge of this signal.
4	SIN	In	Serial Data Input terminal for indication control.
5	VMOD	In	Effective edge changing input terminal for Vertical Sync Signal. "H" = Rising edge "L" = Falling edge
6	Vcc	–	+5V
7	$\overline{\text{XDOUT}}$	Out	Inverting output of XD signal.
8	XD	Out	External circuit terminals for Dot Clock Generator.
9	EXD	In	
10	Vss	–	Ground
11	LHP	Out	Line Hider Pulse output terminal.
12	VOR	Out	Color signal output terminals of RGB system.
13	VOG	Out	
14	VOB	Out	
15	VBR	Out	Blanking signal output terminals which indicating output of the character signal against the RGB system.
16	VBG	Out	
17	VBB	Out	
18	$\overline{\text{VSYNC}}$	In	Vertical Sync signal input terminal.
19	$\overline{\text{HSYNC}}$	In	Horizontal Sync signal input terminal.
20	N.C.	–	Non Connection


SCLK
2
STB
3
SIN
4
Serial to Parallel Converter
8-bit Latch
Instruction Decoder
Bank Control
Register Control Bus
Data Bus
Vertical Indication Position Register
Horizontal Indication Position Register
Write Column Address
Write Row Address
Column Address Counter
Row Address Counter
VRAM Read Address Indication Position Detector
VRAM Access Control
Indication Memory VRAM (11-bit x 228)
5
VMOD
18
VSYNC
19
HSYNC
Sync Control Section
CGROM Raster Counter
Vertical Position Counter
Horizontal Position Counter
7
XDOUT
8
XD
9
EXD
Dot Clock Generator
Screen Indication CGROM Access Control
14 VOB
17 VBB
13 VOG
16 VBG
12 VOR
15 VBR
11 LHP
Caracter Size Mask Pulse
Dot Oscillation Control Register
Character, Back and Frame Indication Control Register
Character Generator ROM (12 x 18)-dot x 128-character
VCC
6
VSS
10
Blink Period Counter
1 N.C.
20 N.C.

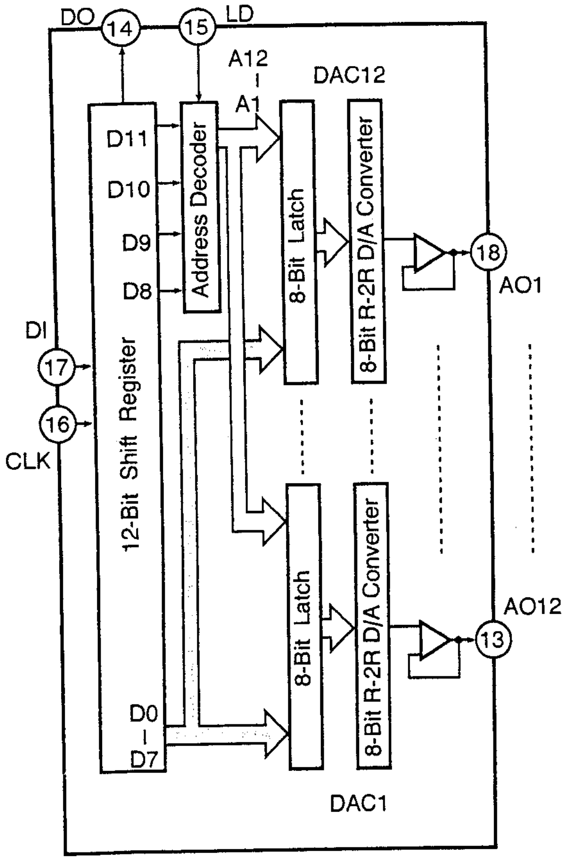
2.6. IC9 on the Digital Board is using the 12-ch D/A Converter IC YWMB88346BEF.
Description of this IC is as follows:



Vss 1
AO3 2
AO4 3
AO5 4
AO6 5
AO7 6
AO8 7
AO9 8
AO10 9
VDD 10
20 GND
19 AO2
18 AO1
17 DI
16 CLK
15 LD
14 DO
13 AO12
12 AO11
11 Vcc

(TOP VIEW)

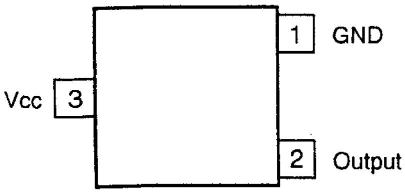
Pin	Name	I/O	Description
1	Vss	–	Ground terminal for D/A Converter circuit.
2	AO3	O	Analog Data 3 output terminal.
3	AO4	O	Analog Data 4 output terminal.
4	AO5	O	Analog Data 5 output terminal.
5	AO6	O	Analog Data 6 output terminal.
6	AO7	O	Analog Data 7 output terminal.
7	AO8	O	Analog Data 8 output terminal.
8	AO9	O	Analog Data 9 output terminal.
9	AO10	O	Analog Data 10 output terminal.
10	VDD	–	Power supply terminal for D/A Converter circuit.
11	Vcc	–	Power supply terminal for MCU Interface and Ope-Amp. circuits.
12	AO11	O	Analog Data 11 output terminal.
13	AO12	O	Analog Data 12 output terminal.
14	DO	O	MSB Data output terminal from 12-Bit Shift Register.
15	LD	I	Load signal input terminal. Data of 12-Bit Shift Register should be loaded to Decoder and D/A Output Registers when LD = H.
16	CLK	I	Shift Clock input terminal. Serial Data from DI terminal should be input to Decoder and 12-Bit Shift Register at falling edge of this signal.
17	DI	I	12-Bit Serial Data input terminal.
18	AO1	O	Analog Data 1 output terminal.
19	AO2	O	Analog Data 2 output terminal.
20	GND	–	Ground terminal for MCU Interface and Ope-Amp. circuits.

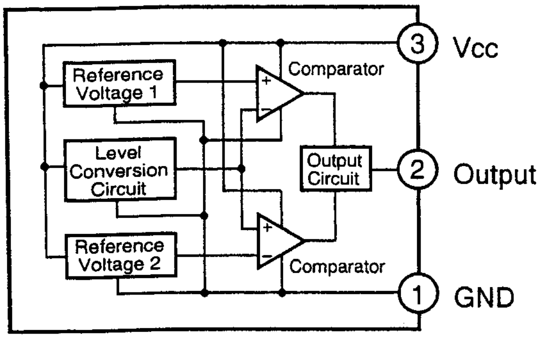


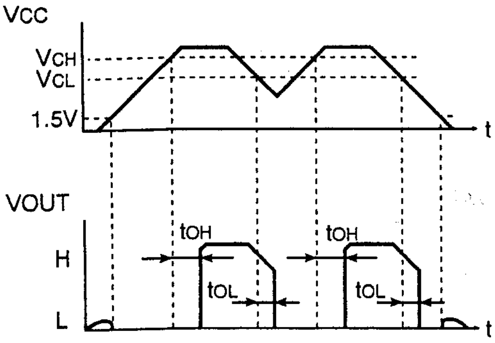
DO
14
15
LD
A12
A1
DAC12
D11
D10
D9
D8
Address Decoder
8-Bit Latch
8-Bit R-2R D/A Converter
18
AO1
DI
17
16
CLK
12-Bit Shift Register
8-Bit Latch
8-Bit R-2R D/A Converter
AO12
13
D0
D7
DAC1

2.7. IC11 on the Digital Board is using the 3.5V Reset IC MN13821.

Description of this IC is as follows:

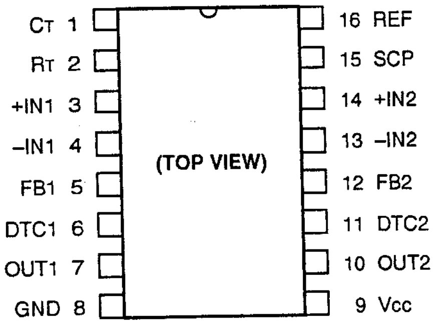

1 GND
Vcc 3
2 Output


Reference Voltage 1
Level Conversion Circuit
Reference Voltage 2
Comparator
Output Circuit
Comparator
+
−
3 Vcc
2 Output
1 GND



3. Rear Board

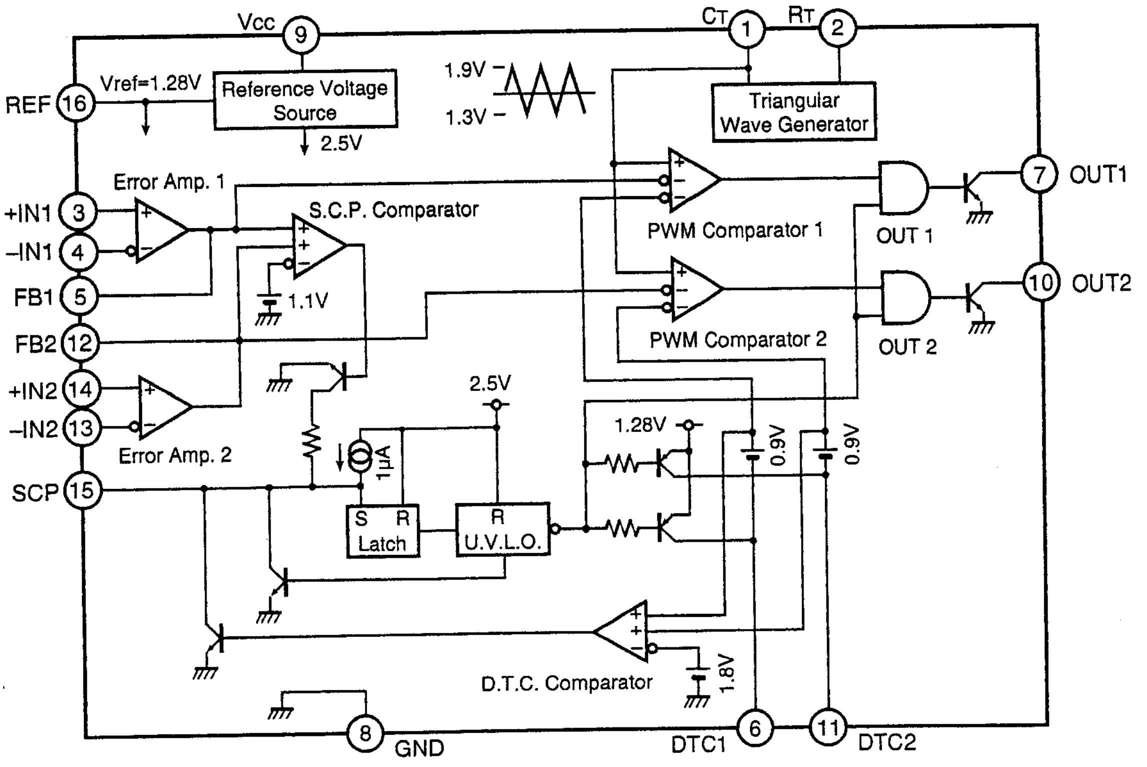
3.1. IC7 on the Rear Board is using the Switching Regulator Controller IC YWMB3775PFV.
Description of this IC is as follows:



CT 1
RT 2
+IN1 3
–IN1 4
FB1 5
DTC1 6
OUT1 7
GND 8
(TOP VIEW)
16 REF
15 SCP
14 +IN2
13 –IN2
12 FB2
11 DTC2
10 OUT2
9 Vcc

DTC : Dead Time Control
SCP : Short Circuit Protection

Pin	Name	I/O	Description
1	CT	–	Timing capacitor connecting terminal.
2	RT	–	Timing resistor connecting terminal.
3	+IN1	I	Non-invereting input terminal for Error Amplifier 1.
4	–IN1	I	Invereting input terminal for Error Amplifier 1.
5	FB1	–	Feedback terminal for Error Amplifier 1.
6	DTC1	I	DTC 1 signal input terminal.
7	OUT1	O	Control signal output terminal 1.
8	GND	–	Ground terminal.
9	Vcc	–	Power supply terminal.
10	OUT2	O	Control signal output terminal 2.
11	DTC2	I	DTC 2 signal input terminal.
12	FB2	–	Feedback terminal for Error Amplifier 2.
13	–IN2	I	Invereting input terminal for Error Amplifier 2.
14	+IN2	I	Non-invereting input terminal for Error Amplifier 2.
15	SCP	–	Short Circuit Protection terminal.
16	REF	O	Reference voltage output terminal.



Vcc
9
CT
1
RT
2
REF
16
Vref=1.28V
Reference Voltage Source
2.5V
1.9V
1.3V
Triangular Wave Generator
Error Amp. 1
+IN1
3
–IN1
4
FB1
5
FB2
12
+IN2
14
–IN2
13
Error Amp. 2
SCP
15
S.C.P. Comparator
1.1V
PWM Comparator 1
PWM Comparator 2
OUT 1
OUT 2
7
OUT1
10
OUT2
2.5V
1.28V
0.9V
0.9V
1µA
S R
Latch
R
U.V.L.O.
D.T.C. Comparator
1.8V
8
GND
DTC1
6
11
DTC2

About Your Computer

In order to run the E.V.R. (Electric Variable Resistor) adjustment program your IBM-PC/AT Type or compatible must meet the following requirements:

- The DOS Operating System must be 3.3 or higher.
- The Operating System must be 100% compatible with your computer.
- The memory in your IBM-PC must be at least 640K-bytes, and 512K-bytes shall be available to the E.V.R. adjustment program.

Installing E.V.R. Adjustment Program

- The Example given here is for A 2 drive computer, your procedure might vary slightly depending on drive configuration.
- Formatting new disk and making a copy of DOS Operating System.

  a) Insert disk containing DOS operating system into your floppy drive (for example, drive A) and type **A:**
  b) Insert new disk into your floppy drive (for example, drive B).
  c) Format and make a copy of DOS operating system from your original disk to new disk by typing **FORMAT B: / S** and press the **ENTER** key.
  d) Type **COPY ANSI. SYS B:** and press the **ENTER** key.

- Install E.V.R. Adjustment Program onto formatted new disk with DOS operating system.

  e) Take out original disk containing DOS operating system from your floppy drive (drive A) and insert disk containing E.V.R. adjustment program into your floppy drive (drive A) and type **A:**
  f) At the prompt, type **CD IBMPC** and press the **ENTER** key.
  g) If required, type **COPY CONFIG. SYS B**: and press the **ENTER** key.
  h) Type **CD PAL.**
  i) Type **COPY ADJ2E. EXE B:** and press the **ENTER** key.
  j) Type **CD ** and press the **ENTER** key.
  k) Type **CD SEQ** and press the **ENTER** key.
  l) Type **COPY BP510E. SEQ B:** and press the **ENTER** key.
  m) Type **CD ** and press the **ENTER** key.
  n) Type **CD EVR** and press the **ENTER** key.
  o) Type **COPY BP510E. EVR B:** and press the **ENTER** key.
  p) After completing installation of program, you are ready to use the E.V.R. adjustment program.

Note:

When completed the new disk should be a bootable disk which contains the following files:

1.	COMMAND	COM
2.	ANSI	SYS
3.	CONFIG	SYS
4.	ADJ2E	EXE
5.	BP510E	SEQ
6.	BP510E	EVR

ADJUSTMENT PROCEDURE

1. Test Equipment Required

- The following test Equipments are required for adjustment of the CCTV Camera WV-BP510, WV-WV-BP514.
- Oscilloscope
- Frequency Counter
- Digital Voltmeter
- Waveform Monitor
- Underscanned Black and White Video Monitor
- 24 V DC Power Supply Unit
- Lux Meter
- Lighting (1,050 nt (2750 lux))
- Personal Computer (IBM PC/AT type or equivalent)
- Standard Straight RS-232C Cable
- ALC Lens (WV-LA9C3A or equivalent)
- Manual Iris Lens
- Radiation Chart
- Logarithmic Gray Scale Chart (Part Number: YWV2310RB99) as shown Fig. 1-1.

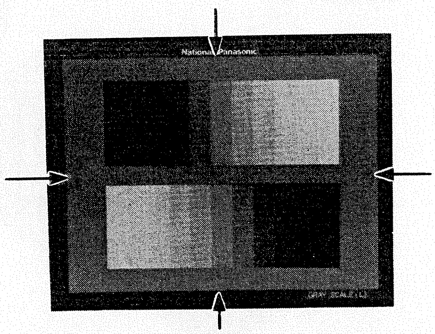
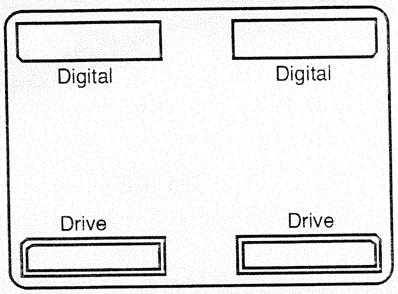
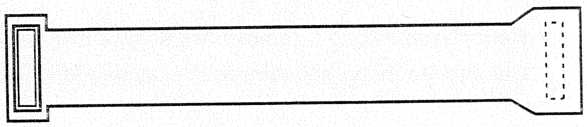


Fig. 1-1

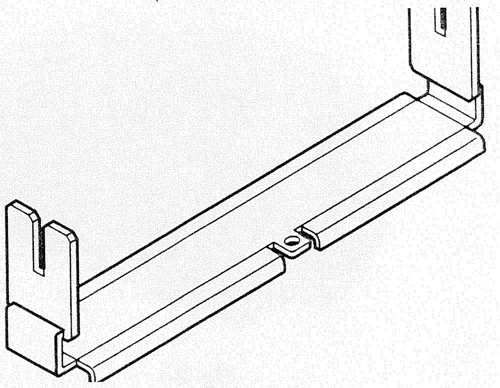
- Extension Board Ass'y as shown in Fig. 1-2.
  (Following Extension Board, Extension Cable and Mounting Bracket are included.)
  (Part Number : YWV0EA0326AN)



(Extension Board)



(Extension Cable)



(Mounting Bracket)

Fig. 1-2

- Electric Variable Resistor (E.V.R.) kit (Part No.: YWV0EA0182BN) as shown in Fig. 1-3.

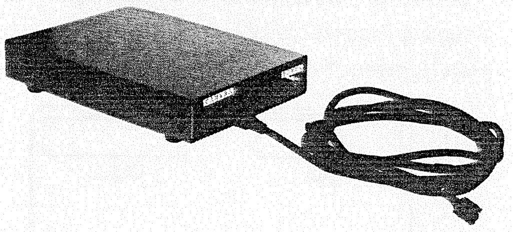


Fig. 1-3

2. Disassembling Procedure for Adjustment

- Referring to Fig. 2-1, remove two screws that secure the Camera Mounting and remove the Camera Mounting.

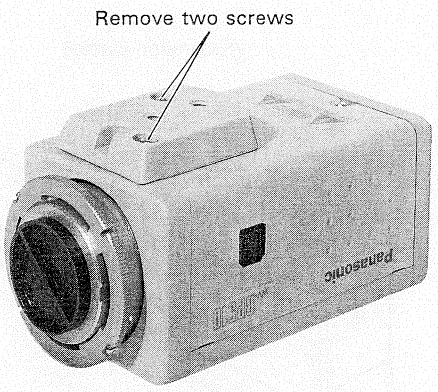

Remove two screws

Fig. 2-1

- Referring to Fig. 2-2, remove two screws that secure the Bottom Cover and remove the Bottom Cover.

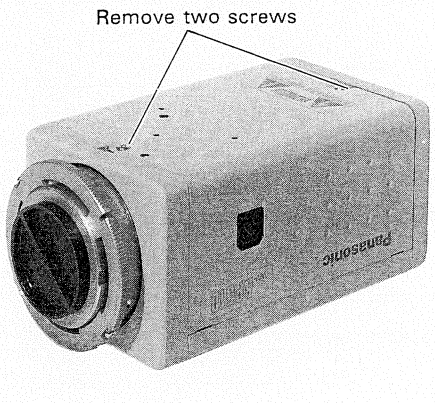

Remove two screws

Fig. 2-2

- Referring to Fig. 2-3, disconnect the connectors CN1 and CN5 from the Drive Board and remove one screw that secure the Drive Board and Digital Board, and remove the Drive Board and Digital Board.

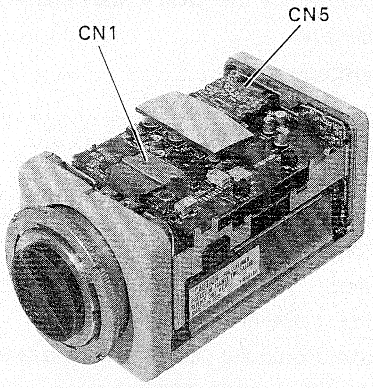


Fig. 2-3

- Referring to Fig. 2-4, mount the Mounting Bracket by removed screw.

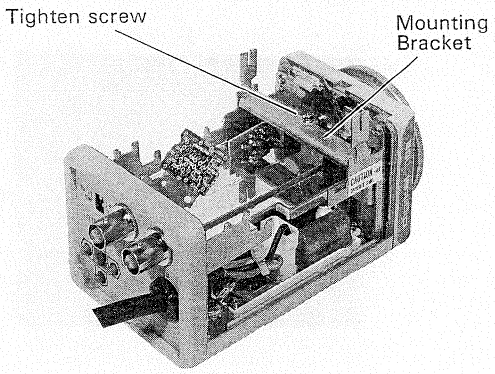

Tighten screw
Mounting Bracket

Fig. 2-4

- Referring to Fig. 2-5, connect the Drive Board and Digital Board by the Extension Board.

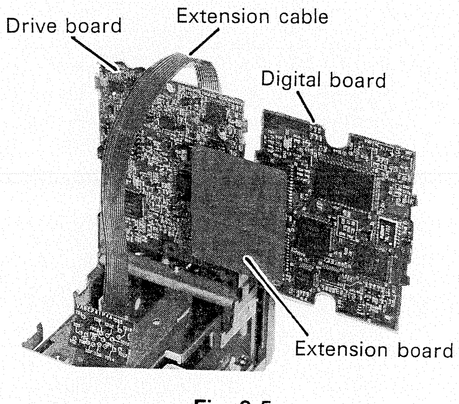

Drive board
Extension cable
Digital board
Extension board

Fig. 2-5

- Referring to Fig. 2-6, place the Drive Board and connect the connectors CN5 on the Drive Board and CN1 on the Rear Board by the Extension Cable.

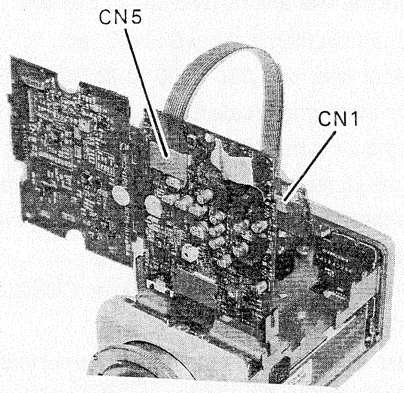


Fig. 2-6

3. Head Optical Ass'y Replacement Procedure

- Disassembling the Camera while referring to the **2. Disassembling Procedure for adjustment**.
- Referring to Fig. 3-1, remove one screw that secure the Front Chassis and remove the Front Chassis.

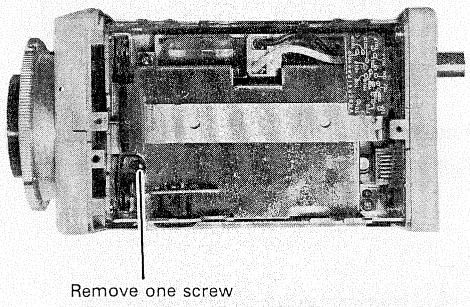


Fig. 3-1

- Referring to Fig. 3-2, remove one screw that secure the ALC Board and disconnect CN1 from the Sensor Board.
- Referring to Fig. 3-2, remove the ALC connector (CN2) from the Front Chassis and remove the ALC Board.

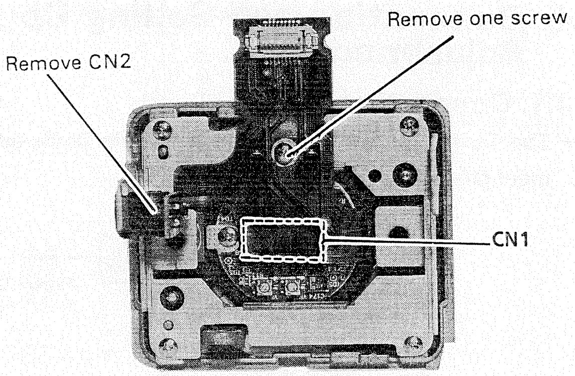


Fig. 3-2

- Referring to Fig. 3-3, remove four screws that secure the Front Chassis and remove the Head Optical Ass'y.

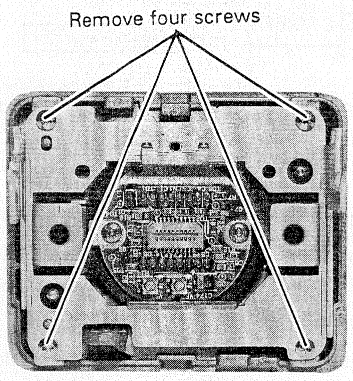


Fig. 3-2

4. Connection and Setting Up for Adjustment

4.1. Connection

- The Fig. 4-1 shows the connection diagram for the adjustment procedure.

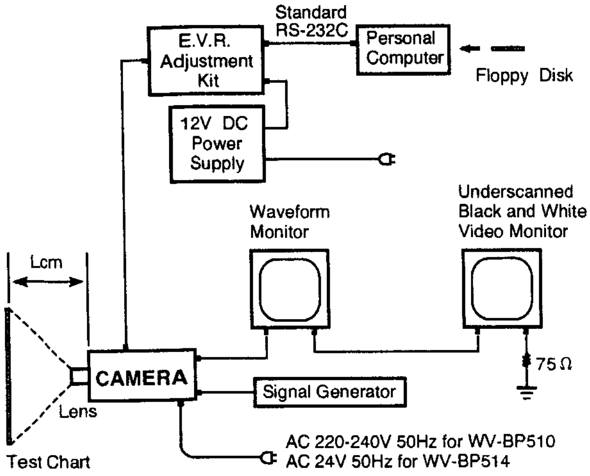

Standard RS-232C
E.V.R. Adjustment Kit
Personal Computer
Floppy Disk
12V DC Power Supply
Waveform Monitor
Underscanned Black and White Video Monitor
Lcm
CAMERA
Lens
Test Chart
75Ω
Signal Generator
AC 220-240V 50Hz for WV-BP510
AC 24V 50Hz for WV-BP514

Fig. 4-1

- Connect the Underscanned Black and White Video Monitor through the Waveform Monitor to the Video Output Connector on the rear panel of the WV-BP510 and WV-BP514 using the coaxial cables.
- Terminate the input terminal of the Underscanned Black and White Video Monitor with 75 Ω.
- **For the WV-BP514**, connect the AC 24V Power Unit to the AC 24V IN Terminal on the Rear Panel of the WV-BP514.
- Connect the probe of the Digital Voltmeter, Oscilloscope or Frequency Counter at the desired Test Point in each adjustment step.

4.2. Initial Position of the Switches for Adjustment

- An initial setting of the Switches on the Rear Panel of the WV-BP510, WV-BP514 as follows:

Lens Selection Switch (VIDEO/DC) .... DC
Gen-Lock Termination Switch (G/L 75Ω/Hi-Z) 75Ω

- The adjustments should be done with this initial setting, unless otherwise specified.

4.3. Setting Up for Standard Picture

- The adjustment should be done after 25 minutes warm-up.
- Mount the Manual Iris lens on the Camera.
- Set the Logarithmic Gray Scale Chart.
- Incident light of 1,050 ± 50 nt (2,750 ± 150 lux) on the Logarithmic gray Scale Chart.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Set the Camera so that the Logarithmic Gray Scale Chart becomes full picture on the Underscanned Black and White Video Monitor.
- Connect the Oscilloscope to pin 1 (CDSOUT) of CN4 on the Drive Board.
- Adjust the Lens Focus to obtain correct focal point.
- Set the LENS Iris so that the peak level of the Gray scale from the blanking level becomes 400 ± 30mVp-p as shown in Fig. 4-2.

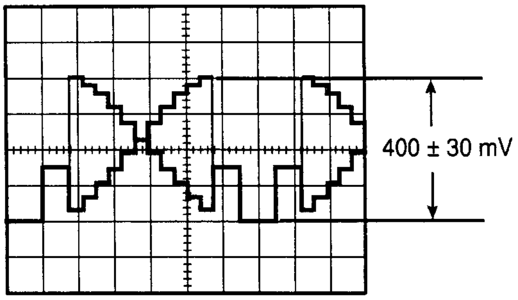


Fig. 4-2

- The adjustments should be done with this Standard Picture, unless otherwise specified.

5. Adjustment Procedure

- Refer to the Location of the Test Points and Adjusting Controls on the page 32.

(1) +9.0V Confirmation

Test Point: TP1 (+9V) Drive Board

- Connect the Digital Voltmeter to TP1.
- Confirm that the voltage at TP1 should be within 9.0 ± 0.3V.

(2) Reset Bias Adjustment

Test Point: TP3 (CCD OUT) Drive Board
Adjust: VR2 (RESET BIAS) Sensor Board

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP3.

- Adjust VR2 so that the Reset Noise becomes maximum as shown in Fig. 5-1

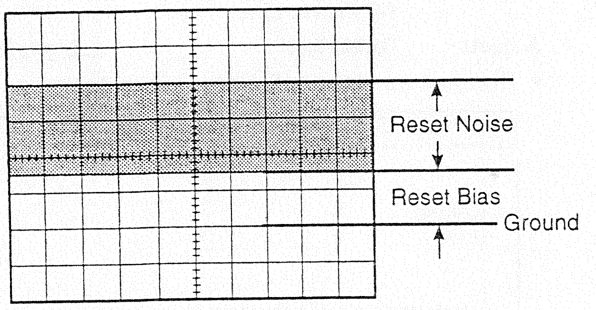


Fig. 5-1

(3) VSUB Adjustment

Adjust: **VR1 (VSUB)** **Sensor Board**

- Mount the F1.4 Manual Iris Lens on the Camera and open the Iris fully.
- Aim the Camera at the bright object such as 40-watt lamp.
- while observing the picture on the Video Monitor, adjust VR1 so that the blooming becomes minimum as shown in Fig. 5-2

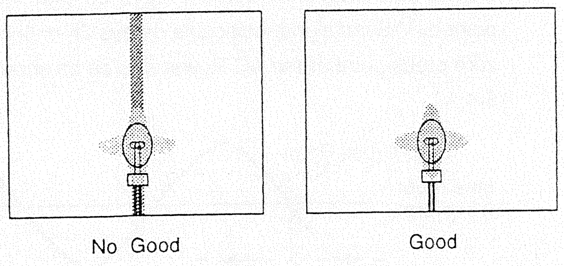

No Good Good

Fig. 5-2

(4) VS VCO Adjustment

Test Point: **TP1 (VS VCO)** **Digital Board**

Adjust: **L1 (VS VCO)** **Digital Board**

- Supply the Composite Video signal to the Gen-Lock Input Connector on the Rear Panel of the Camera.
- Connect the Digital Voltmeter to TP1.
- Adjust L1 to obtain 1.5V $^{+0.1}_{-0.2}$ mV .

(5) Flangeback Adjustment

Test Point: **Video Output Connector** **Rear Panel**

Adjust: **Flangeback Adjusting Ring**

- Set the Radiation Chart.
- Aim the Camera at the Radiation Chart distance of 10m.
- Set the Lens Focus Ring so that the Lens Focus becomes approx. 9mm in front from infinity.
- Referring to Fig. 5-3, loosen two screws that secure the Flangeback Adjusting Ring.

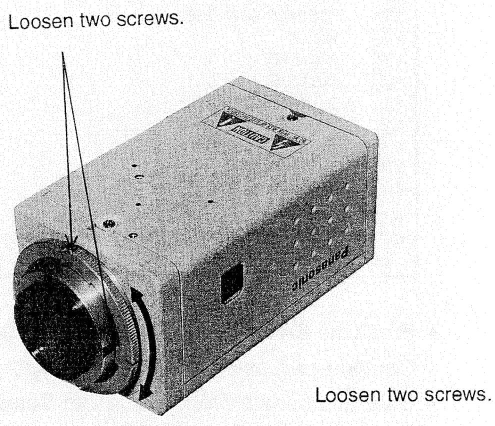
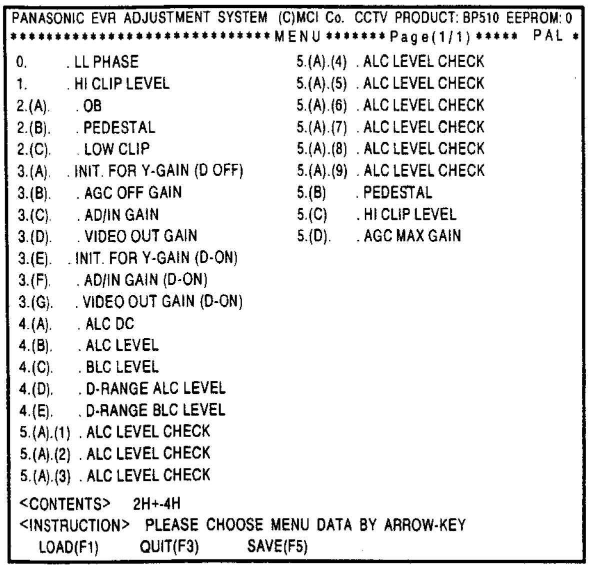


Fig. 5-3

- Adjust the Flangeback Adjusting Ring to obtain best focal point.
- Tighten two screws that secure the Flangeback Adjusting Ring carefully.

■ Adjustment Procedure-2 (E.V.R.) Adjustment

- Connect the E.V.R. Adjustment Kit to CN6 on the Drive Board using extension cables supplied.
- Connect the E.V.R. Adjustment Kit to IBM PC/AT type using the Standard Straight RS-232C cable.
- Insert new disk containing DOS Operating System and the E.V.R. Adjustment program into IBM PC/AT and turns on the Power Switch of IBM PC/AT.
- At the prompt, type **ADJ2E BP510E** and press the **ENTER** key, an initial menu page will be displayed in Table 5-1.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co.  CCTV PRODUCT: BP510 EEPROM: 0
******************************MENU*******Page(1/1)*****  PAL *
0.         . LL PHASE                      5.(A).(4)  . ALC LEVEL CHECK
1.         . HI CLIP LEVEL                 5.(A).(5)  . ALC LEVEL CHECK
2.(A).      . OB                           5.(A).(6)  . ALC LEVEL CHECK
2.(B).      . PEDESTAL                     5.(A).(7)  . ALC LEVEL CHECK
2.(C).      . LOW CLIP                     5.(A).(8)  . ALC LEVEL CHECK
3.(A).    . INIT. FOR Y-GAIN (D OFF)       5.(A).(9)  . ALC LEVEL CHECK
3.(B).      . AGC OFF GAIN                 5.(B)      . PEDESTAL
3.(C).      . AD/IN GAIN                   5.(C)      . HI CLIP LEVEL
3.(D).      . VIDEO OUT GAIN               5.(D).     . AGC MAX GAIN
3.(E).    . INIT. FOR Y-GAIN (D-ON)
3.(F).      . AD/IN GAIN (D-ON)
3.(G).      . VIDEO OUT GAIN (D-ON)
4.(A).      . ALC DC
4.(B).      . ALC LEVEL
4.(C).      . BLC LEVEL
4.(D).      . D-RANGE ALC LEVEL
4.(E).      . D-RANGE BLC LEVEL
5.(A).(1) . ALC LEVEL CHECK
5.(A).(2) . ALC LEVEL CHECK
5.(A).(3) . ALC LEVEL CHECK
<CONTENTS>    2H+-4H
<INSTRUCTION>   PLEASE CHOOSE MENU DATA BY ARROW-KEY
   LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-1

- Press the **SAVE (F5)** key of the Computer, then the Computer will ask you for the file name.
- Give appropriate file name to the Computer. But do not use **BP510E.EVR** for your file.
- This saving procedure is recommended to keep the current adjustment status of the Camera.
- Press the **LOAD (F1)** key and type **BP510E.EVR** and press the **ENTER** key for presetting adjustment of the Camera.
- Press the **ENTER** key to start of adjustment.

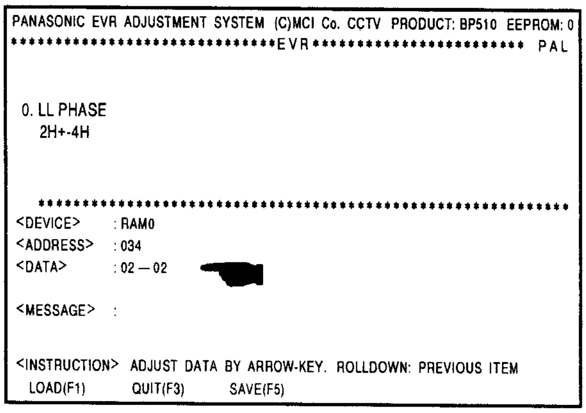
Notes:

- **EEPROM** mentioned in this adjustment procedure is IC4 on the Digital Board.
- **RAM** mentioned in this adjustment procedure is IC8 on the Digital Board.
- **DSP** mentioned in this adjustment procedure is IC3 on the Digital Board.

0. LL Phase Adjustment

Test Point: **Video Output Connector** **Rear Board**
AC Power Line
Adjust: **RAM0(034)** **Digital Board**

- The menu as shown in Table 5-2 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*******************************EVR************************  PAL


 0. LL PHASE
   2H+-4H



   *********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 034
<DATA>        : 02 — 02

<MESSAGE>     :


<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-2

- Connect the CH1 of the Oscilloscope to the Video Output Connector.
- Connect the CH2 of the Oscilloscope to the AC Input terminal on the Power Board.
- Trigger the Oscilloscope at V-rate.
- Adjust data with the **ARROW** keys so that the Decay point of V Sync signal coincides delays 2H ± 4H from the zero cross point of the AC Power source as shown in Fig. 5-4.

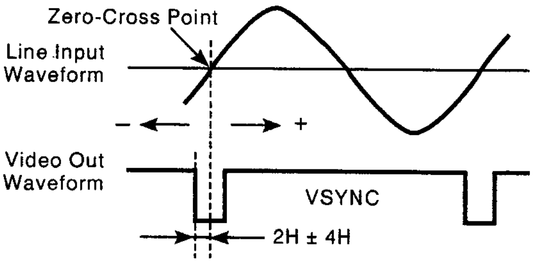


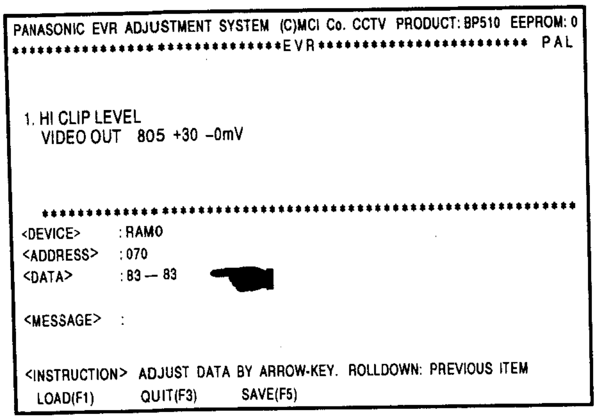
Fig. 5-4

- Press the **ENTER** key for next adjustment.

1. High Clip Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (070)** **Digital Board**

- The menu as shown in Table 5-3 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*******************************EVR************************   PAL


 1. HI CLIP LEVEL
    VIDEO OUT   805 +30 -0mV


   ************************************************************
<DEVICE>      : RAMO
<ADDRESS>     : 070
<DATA>        : 83 — 83

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-3

- Open the Lens Iris fully.
- Aim the Camera at the White Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Adjust data with the **ARROW** keys so that signal level becomes 805 $^{+30}_{-0}$ mV as shown in Fig. 5-5.

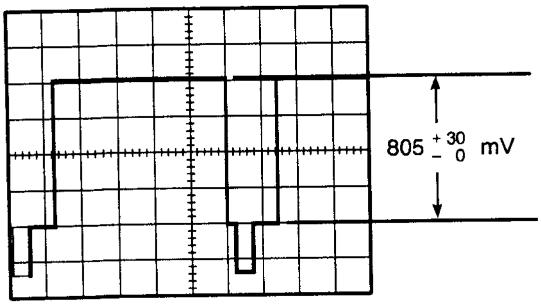


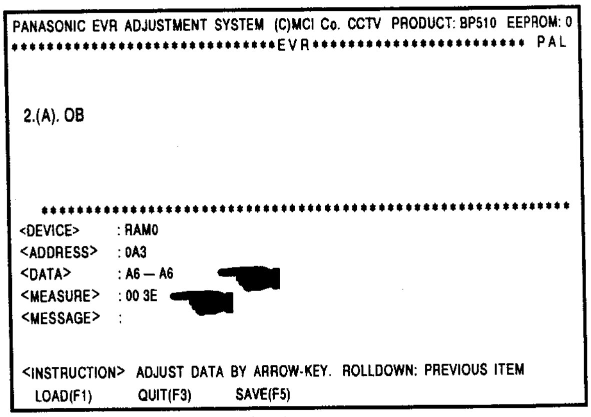
Fig. 5-5

- Press the **ENTER** key for next adjustment.

2.(A). OB Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (0A3)** **Digital Board**

- The menu as shown in Table 5-4 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*******************************EVR*************************   PAL


 2.(A). OB



   ************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 0A3
<DATA>        : A6 — A6
<MEASURE>     : 00 3E
<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

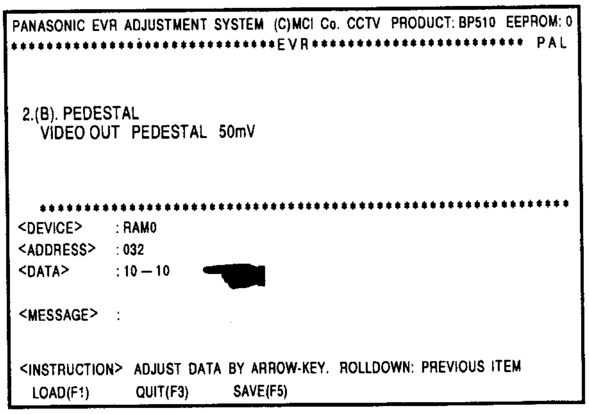
Table 5-4

- Cap on the Lens.
- Adjust data with the **ARROW** keys so that the measure level becomes between 30 and 60.
- Press the **ENTER** key for next adjustment.

2.(B). Pedestal Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (032)** **Digital Board**

- The menu as shown in Table 5-5 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*******************************EVR*************************   PAL


 2.(B). PEDESTAL
    VIDEO OUT   PEDESTAL  50mV


   ************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 032
<DATA>        : 10 — 10

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-5

- Cap on the Lens.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Adjust data with the **ARROW** keys so that the Pedestal level becomes 50 ± 5 mV as shown in Fig. 5-6.

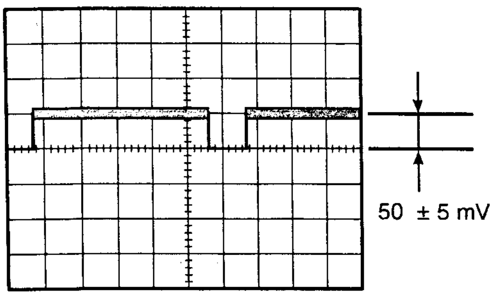


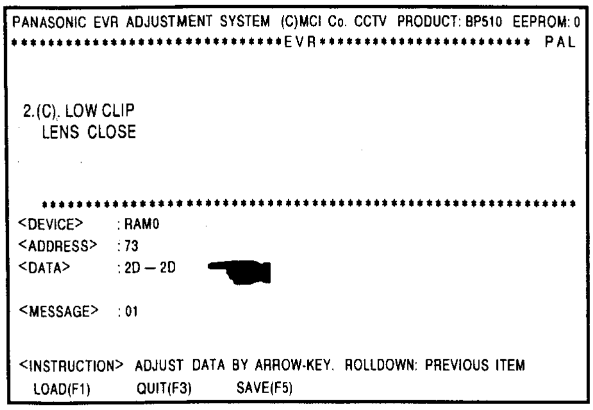
Fig. 5-6

- Press the **ENTER** key for next adjustment.

2.(C). Low Clip Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (073)** **Digital Board**

- The menu as shown in Table 5-6 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*****************************EVR*********************** PAL

 2.(C). LOW CLIP
   LENS CLOSE

*********************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 73
<DATA>       : 2D — 2D

<MESSAGE>    : 01

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-6

- Cap on the Lens.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Adjust data with the **ARROW** keys so that the Pedestal level becomes 50 ± 5 mV as shown in Fig. 5-7.

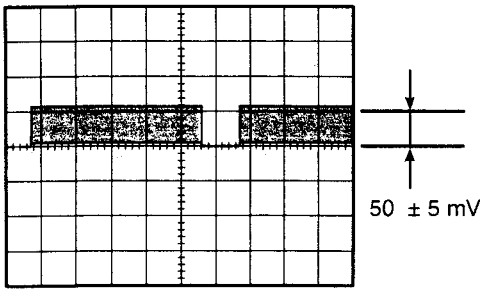


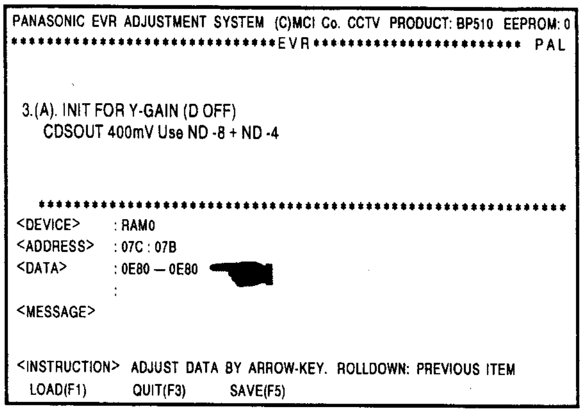
Fig. 5-7

- Press the **PG DN** key twice to return to 2.(A)., and repeat adjustment steps 2.(A). and 2.(C). until both data become satisfactory.
- Press the **ENTER** key for next adjustment.

3.(A). INIT FOR Y. GAIN (D OFF) Adjustment

Test Point: **Pin 1 of CN4 (CDSOUT)** **Drive Board**
Adjust: **RAM0 (07C : 07B)** **Digital Board**

- The menu as shown in Table 5-7 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*****************************EVR*********************** PAL

 3.(A). INIT FOR Y-GAIN (D OFF)
   CDSOUT 400mV Use ND -8 + ND -4

*********************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 07C : 07B
<DATA>       : 0E80 — 0E80
             :
<MESSAGE>

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-7

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 1 of CN4.
- Set the Lens Iris so that the signal level at the pin 1 of CN4 becomes 400 ± 30 mV as shown in Fig. 5-8.

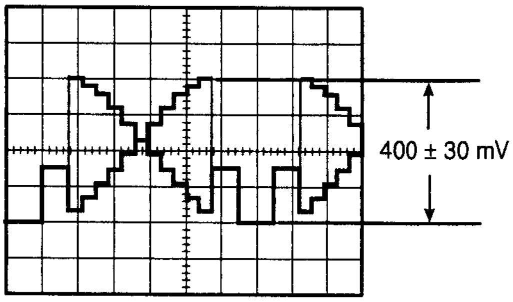
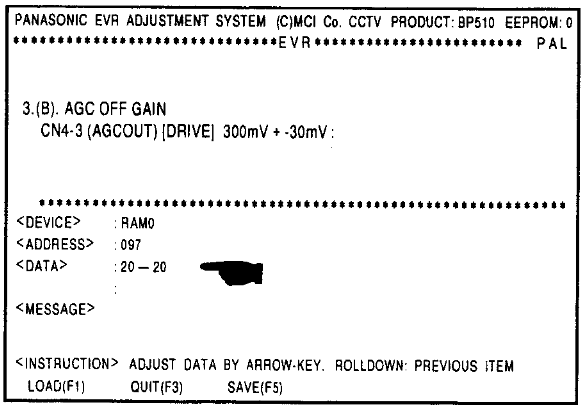


Fig. 5-8

3.(B). AGC OFF Gain Adjustment

Test Point: **Pin 1 of CN4 (CDSOUT)** **Drive Board**
Pin 3 of CN4 (AGCOUT) **Drive Board**
Adjust: **RAM0 (097)** **Digital Board**

- The menu as shown in Table 5-8 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*****************************EVR*********************** PAL

 3.(B). AGC OFF GAIN
   CN4-3 (AGCOUT) [DRIVE] 300mV + -30mV :

*********************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 097
<DATA>       : 20 — 20
             :
<MESSAGE>

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-8

- Change the connection of the Oscilloscope to the pin 3 of CN4.
- Adjust data with the **ARROW** keys so that AGCOUT signal level becomes 300 ± 30 mV as shown in Fig. 5-9.

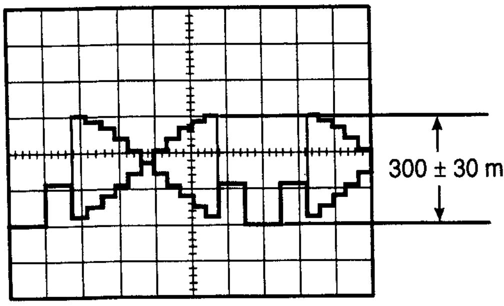


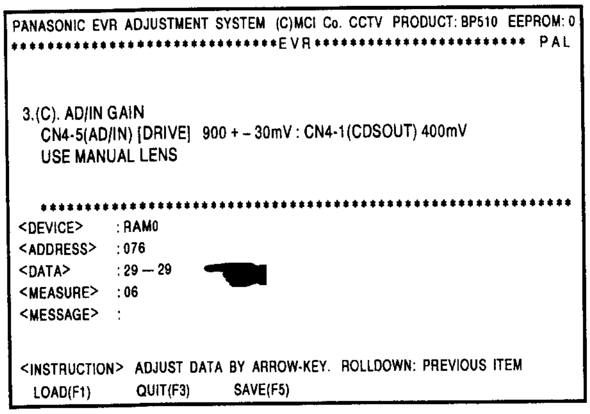
Fig. 5-9

- Press the **ENTER** key for next adjustment.

3.(C). AD/IN Gain Adjustment

Test Point: **Pin 1 of CN4 (CDSOUT)** **Drive Board**
Pin 5 of CN4 (AD/IN) **Drive Board**
Adjust: **RAM0 (076)** **Digital Board**

- The menu as shown in Table 5-9 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR************************  PAL

 3.(C). AD/IN GAIN
   CN4-5(AD/IN) [DRIVE]  900 + - 30mV : CN4-1(CDSOUT) 400mV
   USE MANUAL LENS

   ********************************************************
<DEVICE>    : RAM0
<ADDRESS>   : 076
<DATA>      : 29 — 29
<MEASURE>   : 06
<MESSAGE>   :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-9

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 1 of CN4.
- Set the Lens Iris so that the signal level at the pin 1 of CN4 becomes 400 ± 30 mV as shown in Fig. 5-10.

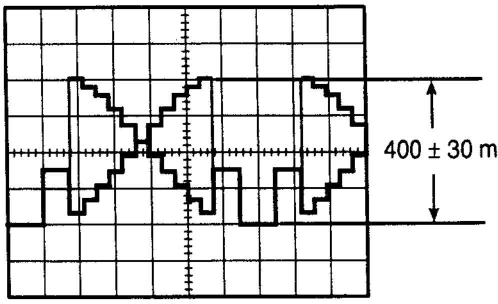


Fig. 5-10

- Change the connection of the Oscilloscope to the pin 5 of CN4.
- Adjust data with the **ARROW** keys so that AD/IN signal level becomes 900 ± 30 mV as shown in Fig. 5-11.

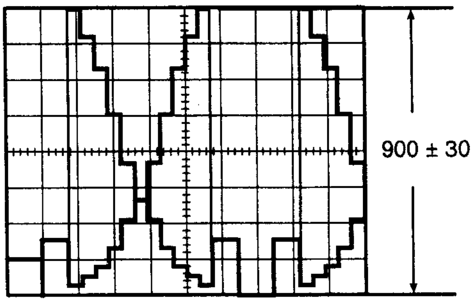


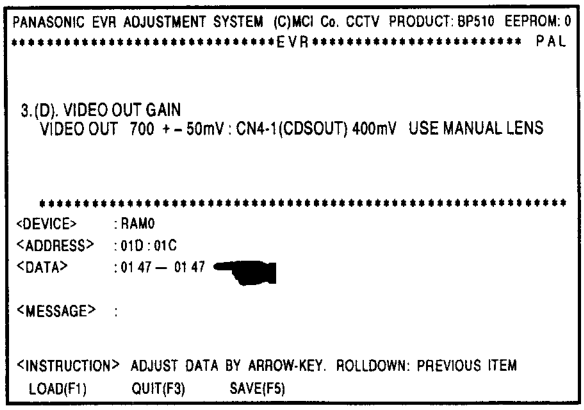
Fig. 5-11

- Press the **ENTER** key for next adjustment.

3.(D). Video Out Gain Adjustment

Test Point: **Pin 1 of CN4 (CDSOUT)** **Drive Board**
Video Output Connector **Rear Panel**
Adjust: **RAM0 (01D:01C)** **Digital Board**

- The menu as shown in Table 5-10 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR************************  PAL

 3.(D). VIDEO OUT GAIN
   VIDEO OUT  700 + - 50mV : CN4-1(CDSOUT) 400mV  USE MANUAL LENS


   ********************************************************
<DEVICE>    : RAM0
<ADDRESS>   : 01D : 01C
<DATA>      : 01 47 — 01 47

<MESSAGE>   :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-10

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 1 of CN4.
- Set the Lens Iris so that the signal level at the pin 1 of CN4 becomes 400 ± 30 mV as shown in Fig. 5-12.

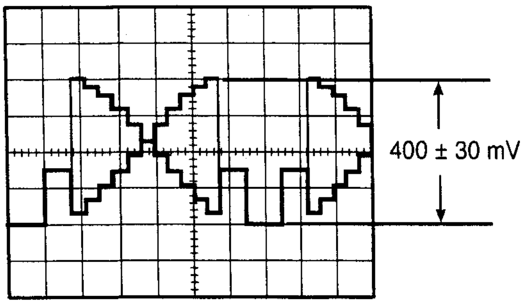


Fig. 5-12

- Adjust data with the **ARROW** keys so that Video signal level becomes 700 ± 50 mV as shown in Fig. 5-13.

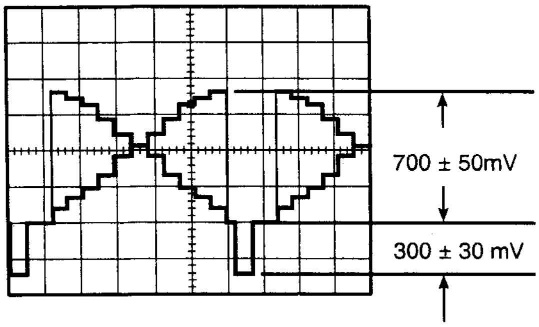


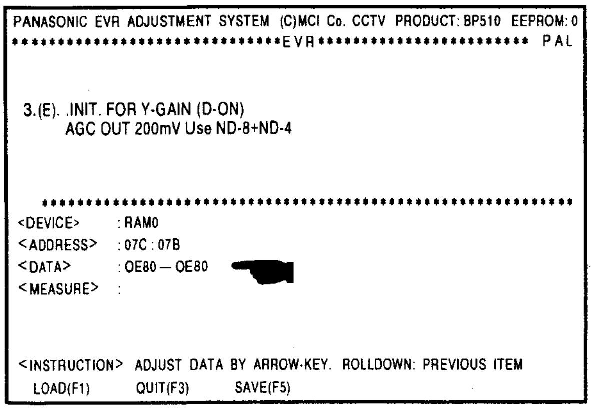
Fig. 5-13

- Press the **ENTER** key for next adjustment.

3.(E). INIT. FOR Y-GAIN (D-ON)

Test Point: **Pin 3 of CN4 (AGCOUT)** **Drive Board**
Adjust: **RAM0 (07C : 07B)** **Digital Board**

- The menu as shown in Table 5-11 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*************************  PAL


 3.(E). .INIT. FOR Y-GAIN (D-ON)
        AGC OUT 200mV Use ND-8+ND-4


   *********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 07C : 07B
<DATA>        : OE80 — OE80
<MEASURE>     :


<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-11

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 3 of CN4.
- Set the Lens Iris so that the signal level at the pin 3 of CN4 becomes 200 ± 30 mV as shown in Fig. 5-14.

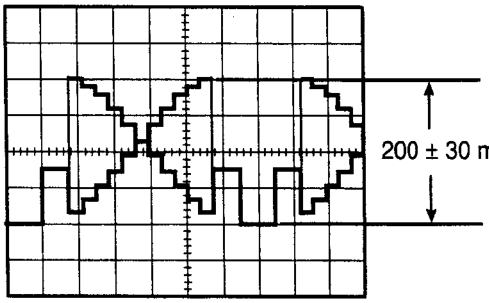
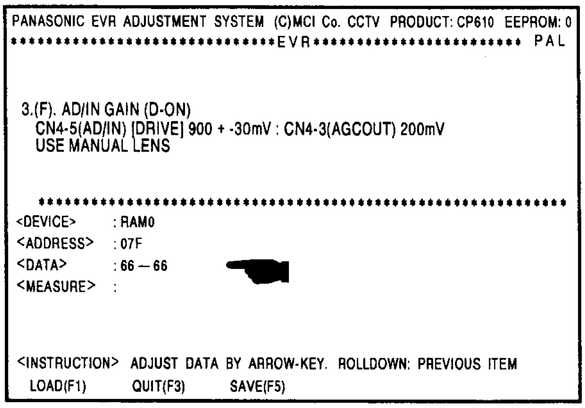


Fig. 5-14

3.(F). AD/IN Gain Adjustment

Test Point: **Pin 3 of CN4 (AGCOUT)** **Drive Board**
Pin 5 of CN4 (AD/IN) **Drive Board**
Adjust: **RAM0 (07F)** **Digital Board**

- The menu as shown in Table 5-12 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: CP610 EEPROM: 0
******************************EVR*************************  PAL


 3.(F). AD/IN GAIN (D-ON)
   CN4-5(AD/IN) [DRIVE] 900 + -30mV : CN4-3(AGCOUT) 200mV
   USE MANUAL LENS


   *********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 07F
<DATA>        : 66 — 66
<MEASURE>     :


<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-12

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 3 of CN4.
- Set the Lens Iris so that the signal level at the pin 3 of CN4 becomes 200 ± 30 mV as shown in Fig. 5-15.

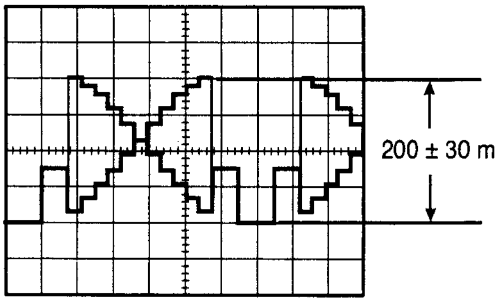


Fig. 5-15

- Change the connection of the Oscilloscope to the pin 5 of CN4
- Adjust data with the **ARROW** keys so that Video signal level becomes 900 ± 30 mV as shown in Fig. 5-16.

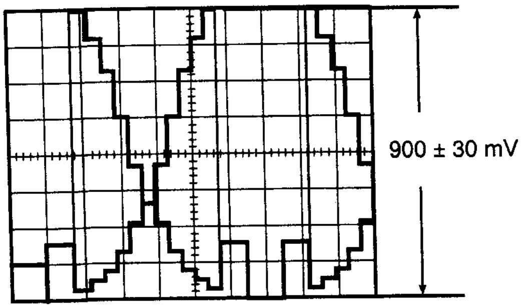


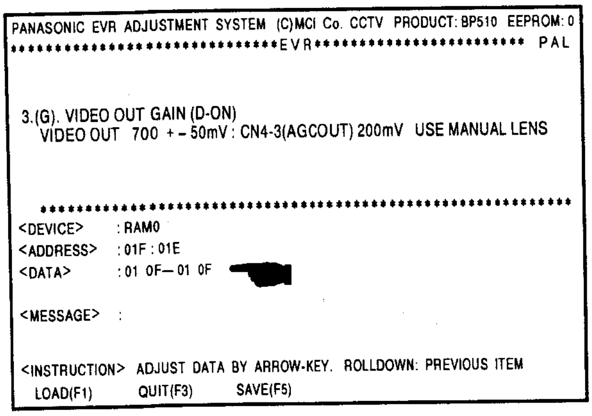
Fig. 5-16

- Press the **ENTER** key for next adjustment.

3.(G). Video Out Gain Adjustment

Test Point: **Pin 3 of CN4 (AGCOUT)** **Drive Board**
Video Output Connector **Rear Panel**
Adjust: **RAM0 (01F: 01E)** **Digital Board**

- The menu as shown in Table 5-13 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR************************  PAL


 3.(G). VIDEO OUT GAIN (D-ON)
   VIDEO OUT  700 + - 50mV : CN4-3(AGCOUT) 200mV  USE MANUAL LENS


   ************************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 01F : 01E
<DATA>       : 01 0F— 01 0F

<MESSAGE>    :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-13

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 3 of CN4.
- Set the Lens Iris so that the signal level at the pin 3 of CN4 becomes 200 ± 30 mV as shown in Fig. 5-17.

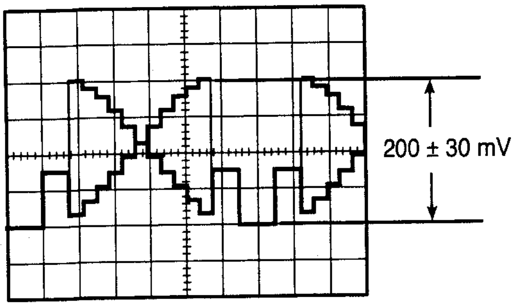


Fig. 5-17

- Adjust data with the **ARROW** keys so that Video signal level becomes 700 ± 50 mV as shown in Fig. 5-18.

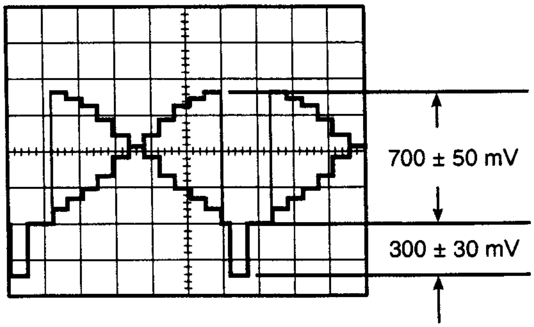


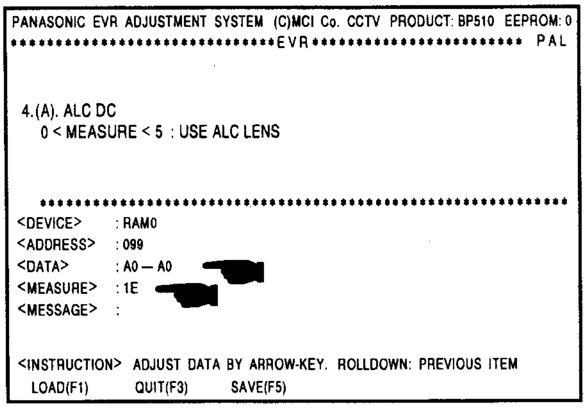
Fig. 5-18

- Press the **ENTER** key for next adjustment.

4.(A). ALC DC Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (099)** **Digital Board**

- The menu as shown in Table 5-14 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR************************  PAL


 4.(A). ALC DC
   0 < MEASURE < 5  : USE ALC LENS


   ************************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 099
<DATA>       : A0 — A0
<MEASURE>    : 1E
<MESSAGE>    :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

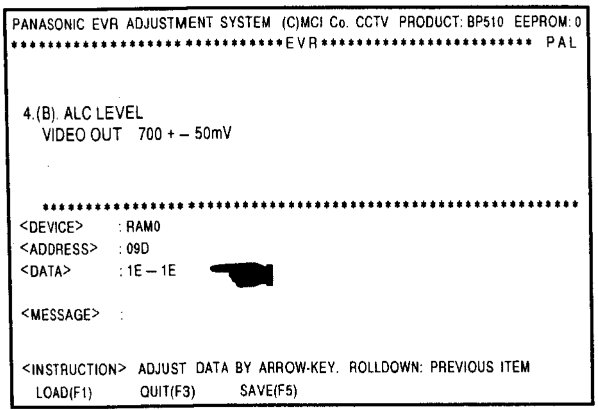
Table 5-14

- Change the Lens from the Manual Iris Lens to Automatic Iris Control Lens.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Adjust data with the **ARROW** keys so that the measure level becomes between 00 and 05.
- Press the **ENTER** key for next adjustment.

4.(B). ALC Level Adjustment

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09D)** **Digital Board**

- The menu as shown in Table 5-15 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*******************************EVR*********************** PAL

 4.(B). ALC LEVEL
   VIDEO OUT  700 + - 50mV

 *********************************************************
 <DEVICE>     : RAMO
 <ADDRESS>    : 09D
 <DATA>       : 1E - 1E

 <MESSAGE>    :

 <INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-15

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-19.

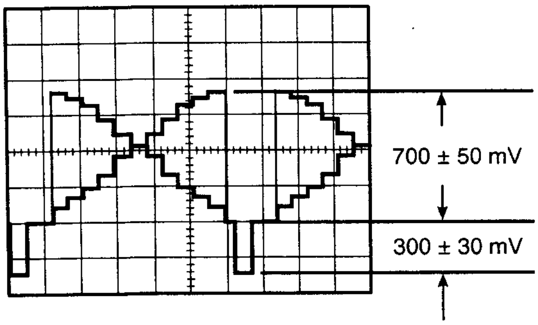


Fig. 5-19

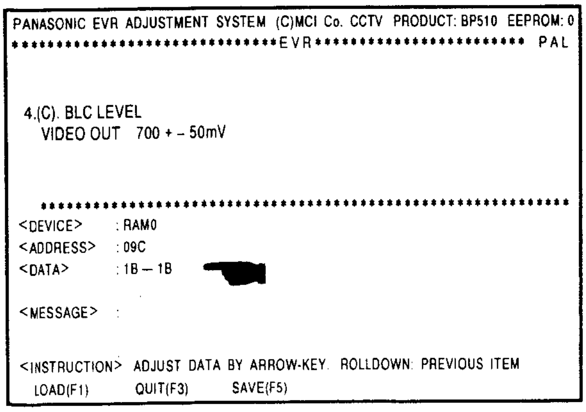
- Press the **ENTER** key for next adjustment.

4.(C). BLC Level Adjustment

Test Point: **Video Output Connector** **Rear Panel**

Adjust: **RAMO (09C)** **Digital Board**

- The menu as shown in Table 5-16 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*******************************EVR*********************** PAL

 4.(C). BLC LEVEL
   VIDEO OUT  700 + - 50mV

 *********************************************************
 <DEVICE>     : RAMO
 <ADDRESS>    : 09C
 <DATA>       : 1B - 1B

 <MESSAGE>    :

 <INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-16

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-20.

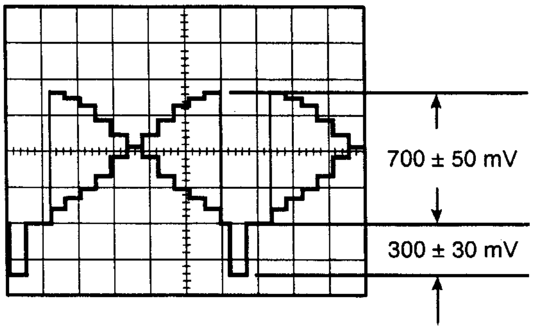


Fig. 5-20

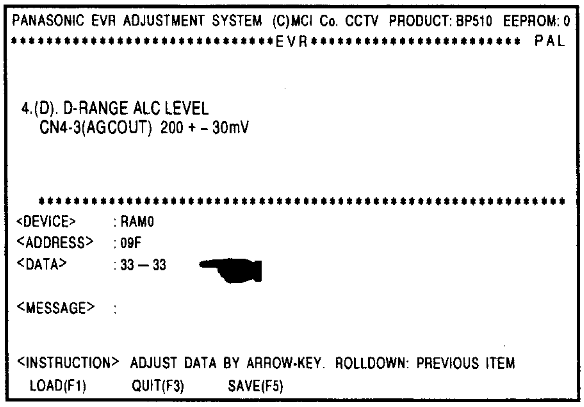
- Press the **ENTER** key for next adjustment.

4.(D). Wide D-range ALC Level Adjustment

Test Point: **Pin 3 of CN4 (AGCOUT)** **Drive Board**

Adjust: **RAMO (09F)** **Digital Board**

- The menu as shown in Table 5-17 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*******************************EVR*********************** PAL

 4.(D). D-RANGE ALC LEVEL
   CN4-3(AGCOUT)  200 + - 30mV

 *********************************************************
 <DEVICE>     : RAMO
 <ADDRESS>    : 09F
 <DATA>       : 33 - 33

 <MESSAGE>    :

 <INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-17

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 3 of CN4.
- Adjust data with the **ARROW** keys so that the AGCOUT signal level becomes 200 ± 30 mV as shown in Fig. 5-21.

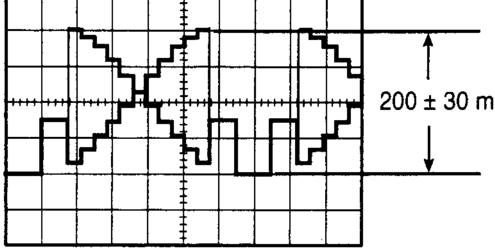


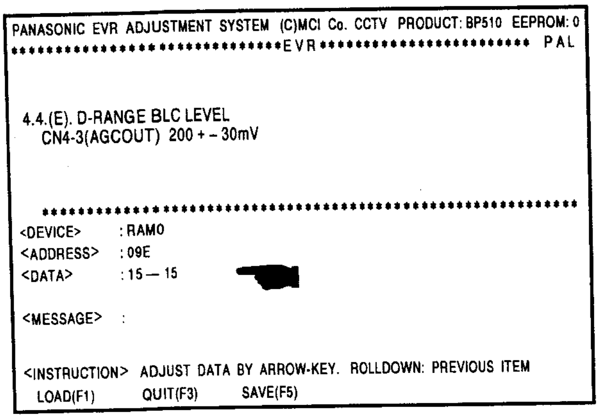
Fig. 5-21

- Press the **ENTER** key for next adjustment.

4.(E). Wide D-range BLC Level Adjustment

Test Point: Pin 3 of CN4 (AGCOUT) Drive Board
Adjust: RAM0 (09E) Digital Board

- The menu as shown in Table 5-18 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT:BP510 EEPROM:0
*******************************EVR*********************** PAL

 4.4.(E). D-RANGE BLC LEVEL
   CN4-3(AGCOUT) 200+-30mV

 *********************************************************
<DEVICE>    :RAMO
<ADDRESS>   :09E
<DATA>      :15-15

<MESSAGE>   :

<INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-18

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to the pin 3 of CN4.
- Adjust data with the **ARROW** keys so that the AGCOUT signal level becomes 200 ± 30 mV as shown in Fig. 5-22.

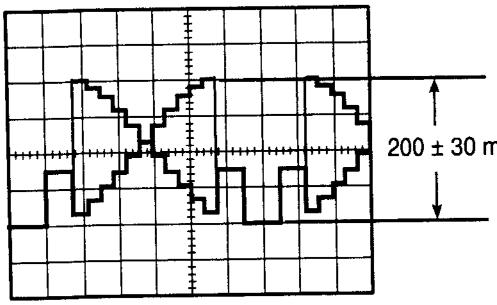


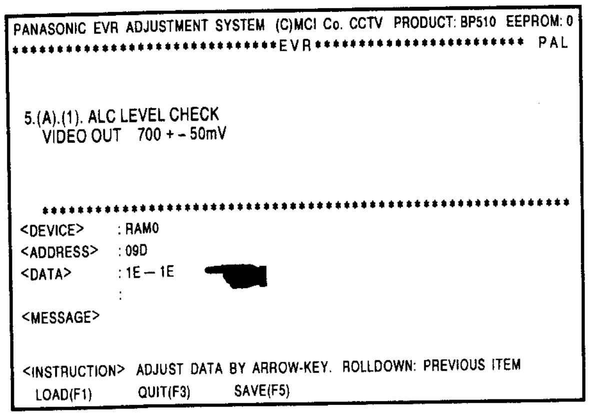
Fig. 5-22

- Press the **ENTER** key for next adjustment.

5.(A).(1). ALC Level Check

Test Point: Video Output Connector Rear Panel
Adjust: RAM0 (09D) Digital Board

- The menu as shown in Table 5-19 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT:BP510 EEPROM:0
*******************************EVR*********************** PAL

 5.(A).(1). ALC LEVEL CHECK
   VIDEO OUT   700+-50mV

 *********************************************************
<DEVICE>    :RAMO
<ADDRESS>   :09D
<DATA>      :1E-1E
            :
<MESSAGE>

<INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-19

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-23.

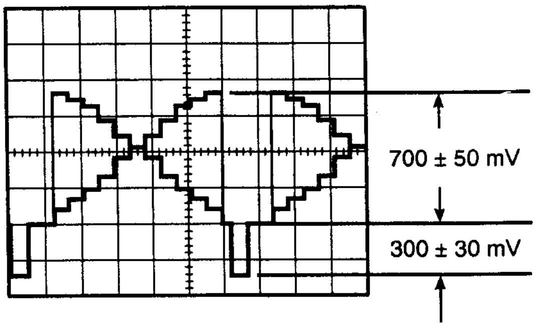


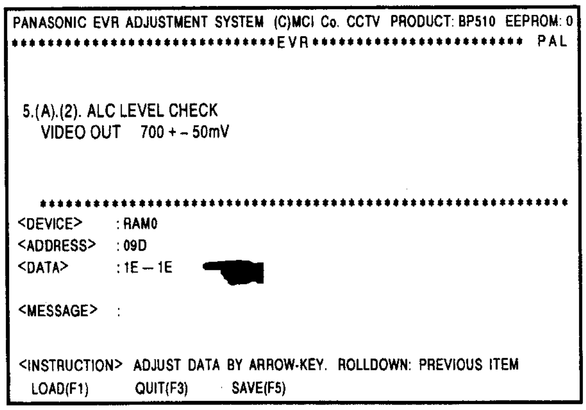
Fig. 5-23

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-23.
- Press the **ENTER** key for next adjustment.

5.(A).(2). ALC Level Check

Test Point: Video Output Connector Rear Panel
Adjust: RAM0 (09D) Digital Board

- The menu as shown in Table 5-20 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT:BP510 EEPROM:0
*******************************EVR*********************** PAL

 5.(A).(2). ALC LEVEL CHECK
   VIDEO OUT   700+-50mV

 *********************************************************
<DEVICE>    :RAMO
<ADDRESS>   :09D
<DATA>      :1E-1E

<MESSAGE>   :

<INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-20

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-24.

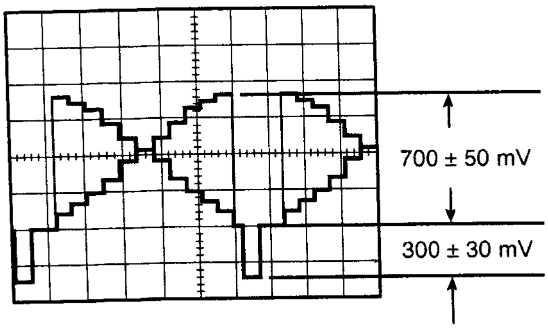


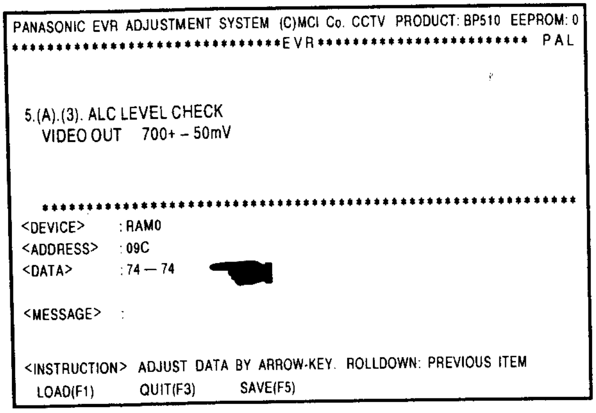
Fig. 5-24

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-24.
- Press the **ENTER** key for next adjustment.

5.(A).(3). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09C)** **Digital Board**

- The menu as shown in Table 5-21 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*******************************EVR************************  PAL

5.(A).(3). ALC LEVEL CHECK
  VIDEO OUT   700+ - 50mV

*************************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 09C
<DATA>       : 74 — 74

<MESSAGE>    :

<INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-21

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-25.

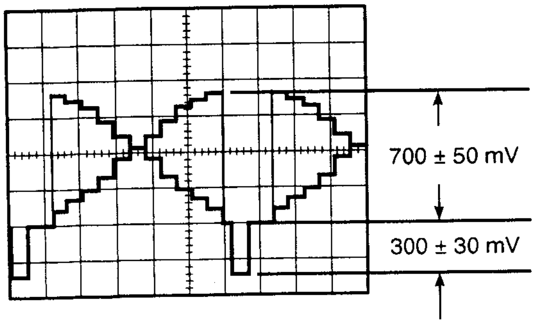


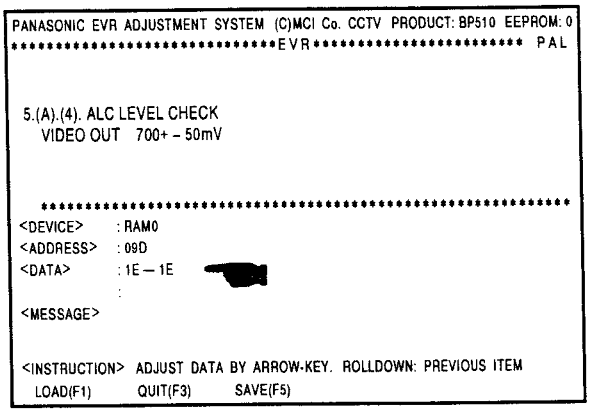
Fig. 5-25

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-25.
- Press the **ENTER** key for next adjustment.

5.(A).(4). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09D)** **Digital Board**

- The menu as shown in Table 5-22 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
*******************************EVR************************  PAL

5.(A).(4). ALC LEVEL CHECK
  VIDEO OUT   700+ - 50mV

*************************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 09D
<DATA>       : 1E — 1E

<MESSAGE>

<INSTRUCTION> ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)      QUIT(F3)      SAVE(F5)
```

Table 5-22

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-26.

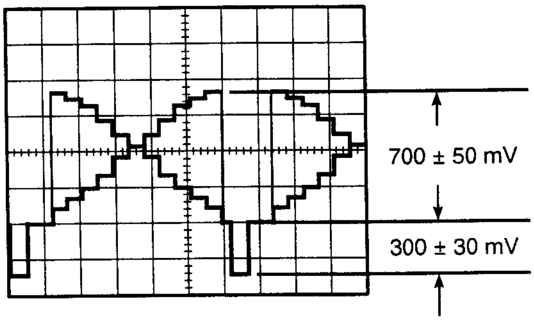


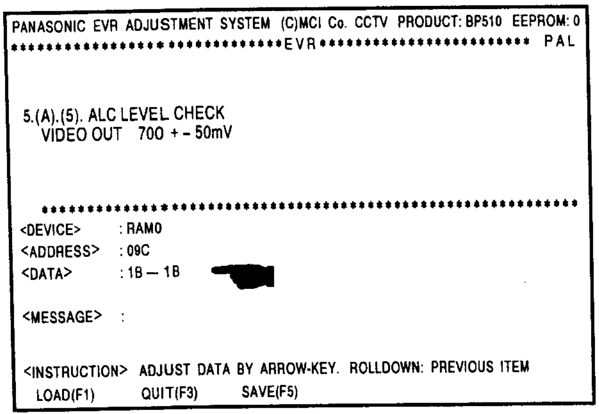
Fig. 5-26

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-26.
- Press the **ENTER** key for next adjustment.

5.(A).(5). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09C)** **Digital Board**

- The menu as shown in Table 5-23 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*********************** PAL

 5.(A).(5). ALC LEVEL CHECK
   VIDEO OUT   700 + - 50mV

 **********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 09C
<DATA>        : 1B — 1B

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-23

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-27.

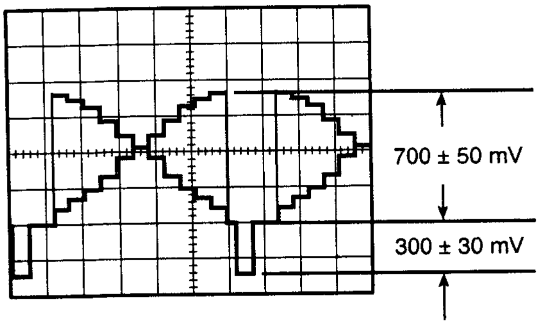


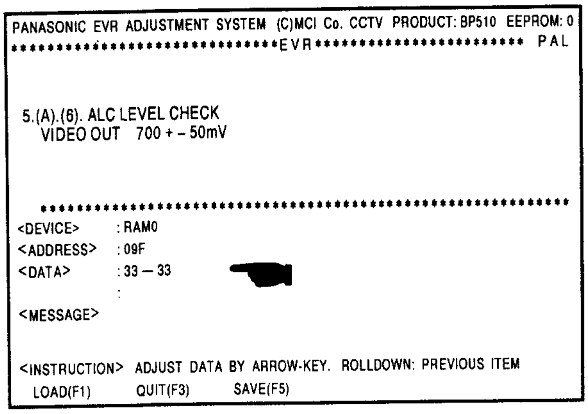
Fig. 5-27

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-27.
- Press the **ENTER** key for next adjustment.

5.(A).(6). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09F)** **Digital Board**

- The menu as shown in Table 5-24 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*********************** PAL

 5.(A).(6). ALC LEVEL CHECK
   VIDEO OUT   700 + - 50mV

 **********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 09F
<DATA>        : 33 — 33
              :
<MESSAGE>

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-24

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-28.

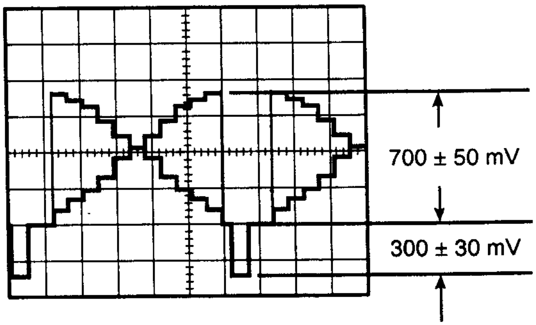


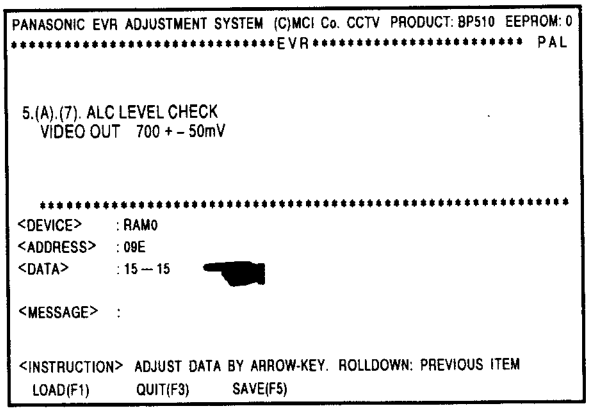
Fig. 5-28

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-28.
- Press the **ENTER** key for next adjustment.

5.(A).(7). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09E)** **Digital Board**

- The menu as shown in Table 5-25 will be displayed



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*********************** PAL

 5.(A).(7). ALC LEVEL CHECK
   VIDEO OUT   700 + - 50mV

 **********************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 09E
<DATA>        : 15 — 15

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-25

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-29.

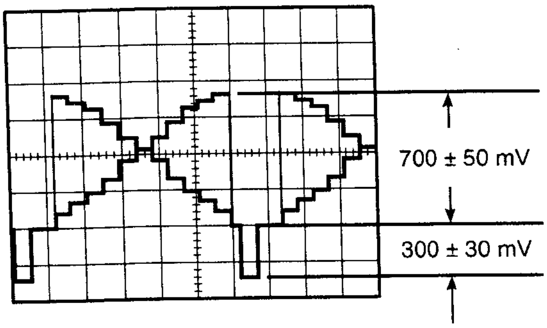


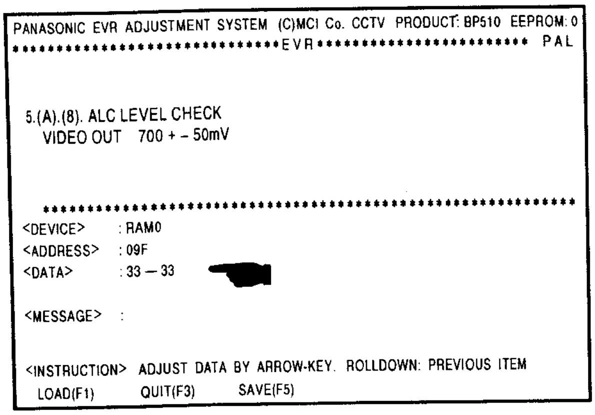
Fig. 5-29

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-29.
- Press the **ENTER** key for next adjustment.

5.(A).(8). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09F)** **Digital Board**

- The menu as shown in Table 5-26 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*********************** PAL

 5.(A).(8). ALC LEVEL CHECK
   VIDEO OUT   700 + - 50mV

*********************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 09F
<DATA>       : 33 — 33

<MESSAGE>  :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-26

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-30.

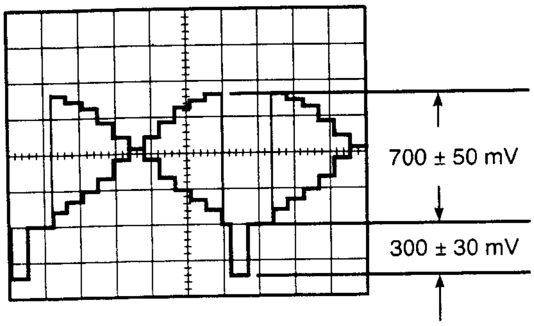


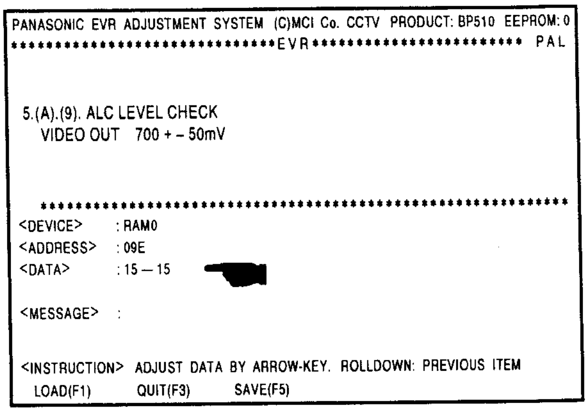
Fig. 5-30

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-30.
- Press the **ENTER** key for next adjustment.

5.(A).(9). ALC Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (09E)** **Digital Board**

- The menu as shown in Table 5-27 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM (C)MCI Co. CCTV PRODUCT: BP510 EEPROM: 0
******************************EVR*********************** PAL

 5.(A).(9). ALC LEVEL CHECK
   VIDEO OUT   700 + - 50mV

*********************************************************
<DEVICE>     : RAM0
<ADDRESS>    : 09E
<DATA>       : 15 — 15

<MESSAGE>  :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY. ROLLDOWN: PREVIOUS ITEM
   LOAD(F1)       QUIT(F3)       SAVE(F5)
```

Table 5-27

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Video signal becomes 700 ± 50 mV as shown in Fig. 5-31.

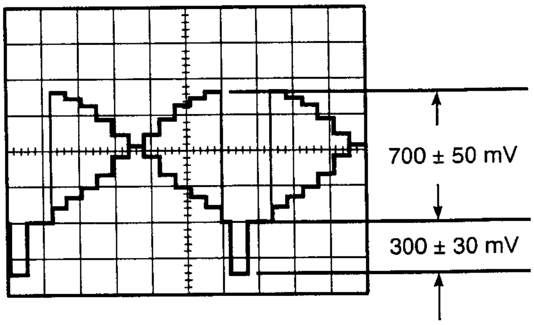


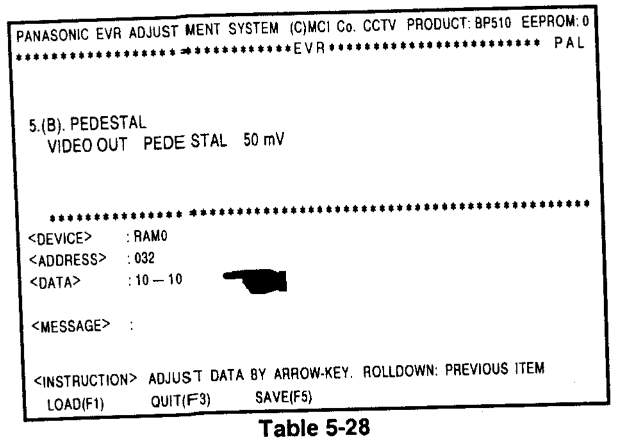
Fig. 5-31

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 700 ± 50 mV as shown in Fig. 5-31.
- Press the **ENTER** key for next adjustment.

5.(B). Pedestal Level Check

Test Point: **Video Output Connector** **Rear Panel**
Adjust: **RAM0 (032)** **Digital Board**

- The menu as shown in Table 5-28 will be displayed.



```
PANASONIC EVR ADJUST MENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*****************************EVR*************************  PAL


5.(B). PEDESTAL
   VIDEO OUT   PEDE STAL   50 mV


   ***************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 032
<DATA>        : 10 — 10

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-28

- Cap on the Lens.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that the Pedestal level becomes 50 ± 5 mV as shown in Fig. 5-32.

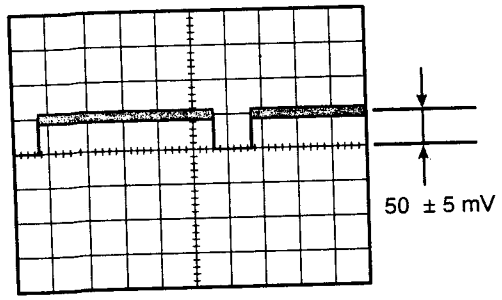


Fig. 5-32

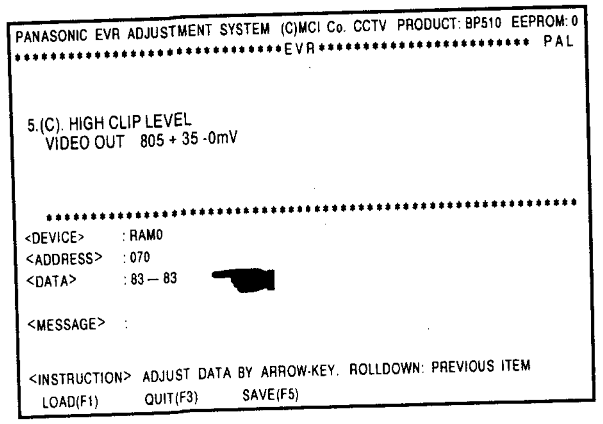
- If not, adjust data with the **ARROW** keys so that the Pedestal level becomes 50 ± 5 mV as shown in Fig. 5-32.
- Press the **ENTER** key for next adjustment.

5.(C). High Clip Level

Test Point: Video Output Connector **Rear Panel**

Adjust: RAM0 (070) **Digital Board**

- The menu as shown in Table 5-29 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*****************************EVR*************************  PAL


5.(C). HIGH CLIP LEVEL
   VIDEO OUT   805 + 35 -0mV


   ***************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 070
<DATA>        : 83 — 83

<MESSAGE>     :

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-29

- Open the Lens Iris fully.
- Aim the Camera at the White Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Confirm that signal level becomes 805 $^{+35}_{-0}$ mV as shown in Fig. 5-33.

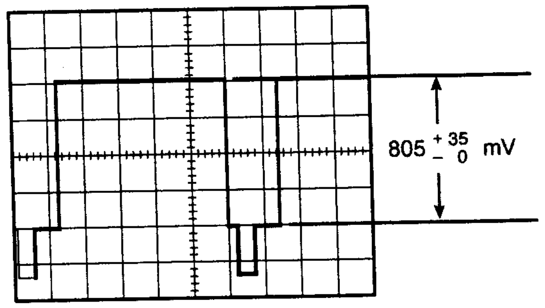


Fig. 5-33

- If not, adjust data with the **ARROW** keys so that signal level becomes 805 $^{+30}_{-0}$ mV as shown in Fig. 5-33.

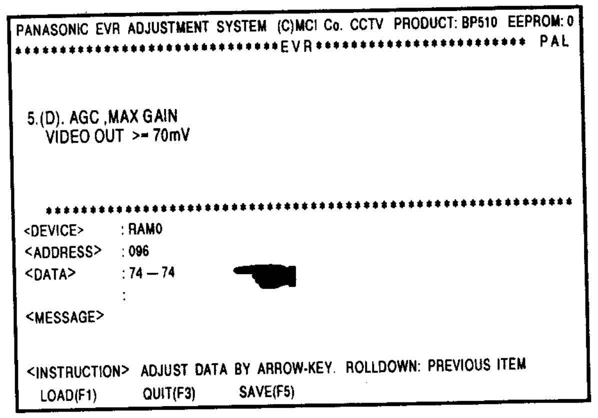
- Press the **ENTER** key for next adjustment.

5.(D). AGC, Max Gain

Test Point: Video Output Connector **Rear Panel**

Adjust: RAM0 (096) **Digital Board**

- The menu as shown in Table 5-30 will be displayed.



```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*****************************EVR*************************  PAL


5.(D). AGC ,MAX GAIN
   VIDEO OUT  >= 70mV


   ***************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 096
<DATA>        : 74 — 74
              :
<MESSAGE>

<INSTRUCTION>  ADJUST DATA BY ARROW-KEY.  ROLLDOWN: PREVIOUS ITEM
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-30

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to the Video Output Connector.
- Change the lighting from 1,400 lux to 0.08 lux.
- Confirm that the Video signal becomes 70 mV as shown in Fig. 5-34.

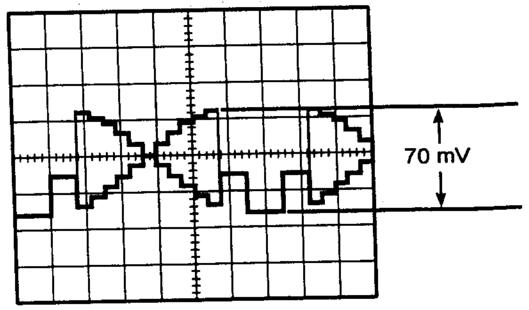
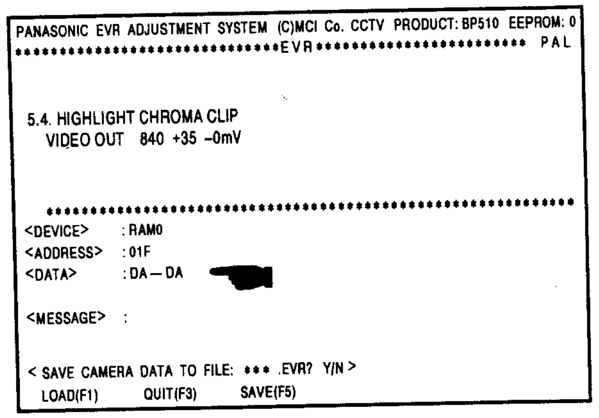


Fig. 5-34

- If not, adjust data with the **ARROW** keys so that the Video signal level becomes 70 mV as shown in Fig. 5-34.
- Return the lighting from 0.08 lux to 1,400 lux.
- Press the **ENTER** key for next adjustment.

- After completing of the adjustment, press the **QUIT (F3)** key, then the menu as shown in Table 5-31 will be displayed.



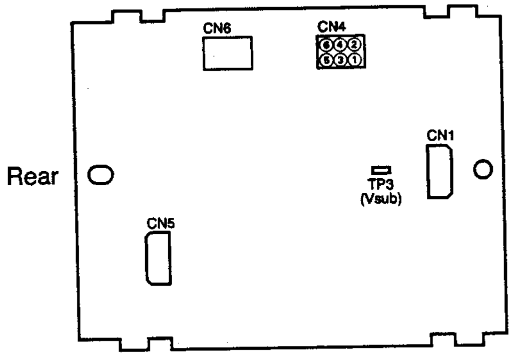
```
PANASONIC EVR ADJUSTMENT SYSTEM  (C)MCI Co. CCTV  PRODUCT: BP510  EEPROM: 0
*****************************EVR*************************  PAL


5.4. HIGHLIGHT CHROMA CLIP
   VIDEO OUT   840  +35  -0mV


   ***************************************************************
<DEVICE>      : RAM0
<ADDRESS>     : 01F
<DATA>        : DA — DA

<MESSAGE>     :

< SAVE CAMERA DATA TO FILE:  *** .EVR?  Y/N >
  LOAD(F1)        QUIT(F3)        SAVE(F5)
```

Table 5-31

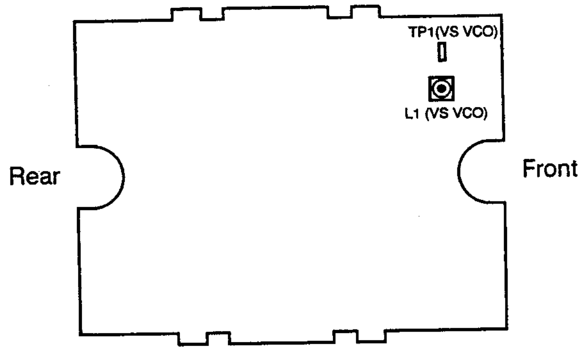
- Press the **N** key, and then press the **ENTER** key to finish of this adjustment procedure.
- Disconnect the cable from CN6 on the Drive Board.

LOCATION OF TEST POINT AND ADJUSTING CONTROLS

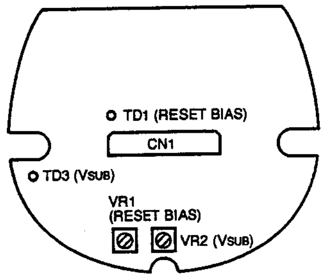
DRIVE BOARD (COMPONENT SIDE)



DIGITAL BOARD (COMPONENT SIDE)

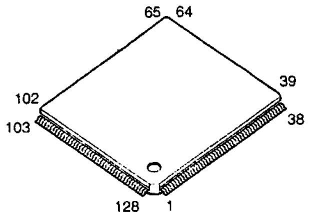


SENSOR BOARD (PATTERN SIDE)

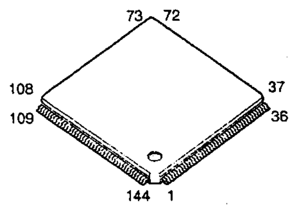


APPEARANCE OF IC, TRANSISTOR AND DIODE

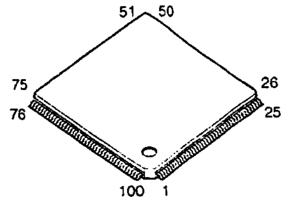
MN67351


65
64
39
38
102
103
128
1

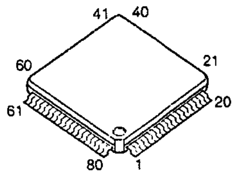
YWL7A1220


73
72
37
36
108
109
144
1

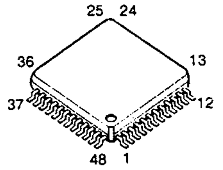
YWL7A1219


51
50
26
25
75
76
100
1

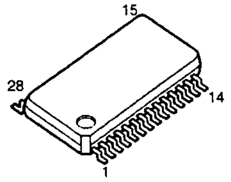
YWTMP90C3429


41
40
21
20
60
61
80
1

NN2038PAQ

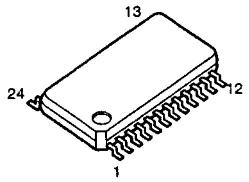

25
24
13
12
36
37
48
1

MN4792S

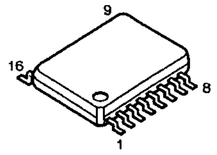


YWMB88346BEF
MB90077PF104

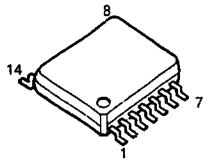
MN3112SA
YWC5020074E1



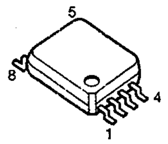
YWC5023068E1
YWMB3775PFV
YWMC14053BF



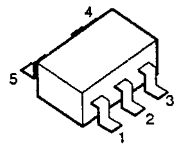
YWTC74VC04FS
TC74AC08FSL



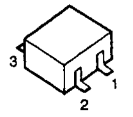
YWBR9020FE1



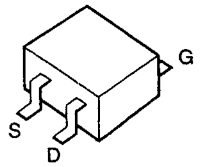
YWNJM2406F
YWTC7S66FUL



MN13821

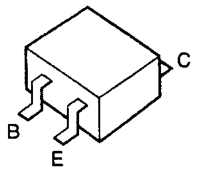


2SK106945

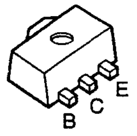


2SA1774
2SC2412-QRS
2SC4081-QRS
2SD1819-QRS

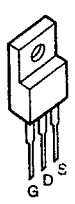
2SB1218A-QR
2SC4617
2SC4619



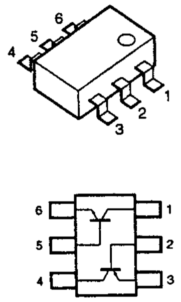
2SB766A-QR



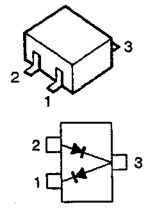
2SK182101M



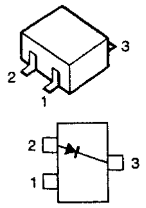
UMZ1


6
5
4
1
2
3
6
5
4
1
2
3

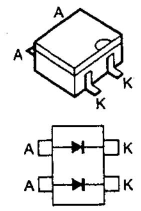
YWDA221



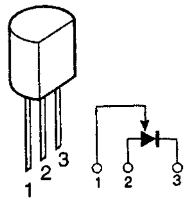
YWDA121
YWDAN217



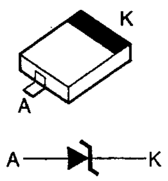
MA159



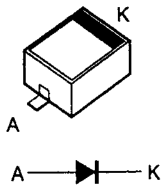
YWTA76431S



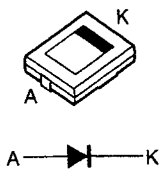
YWDTZ5.1



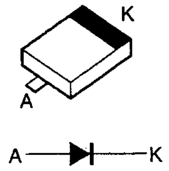
MA112



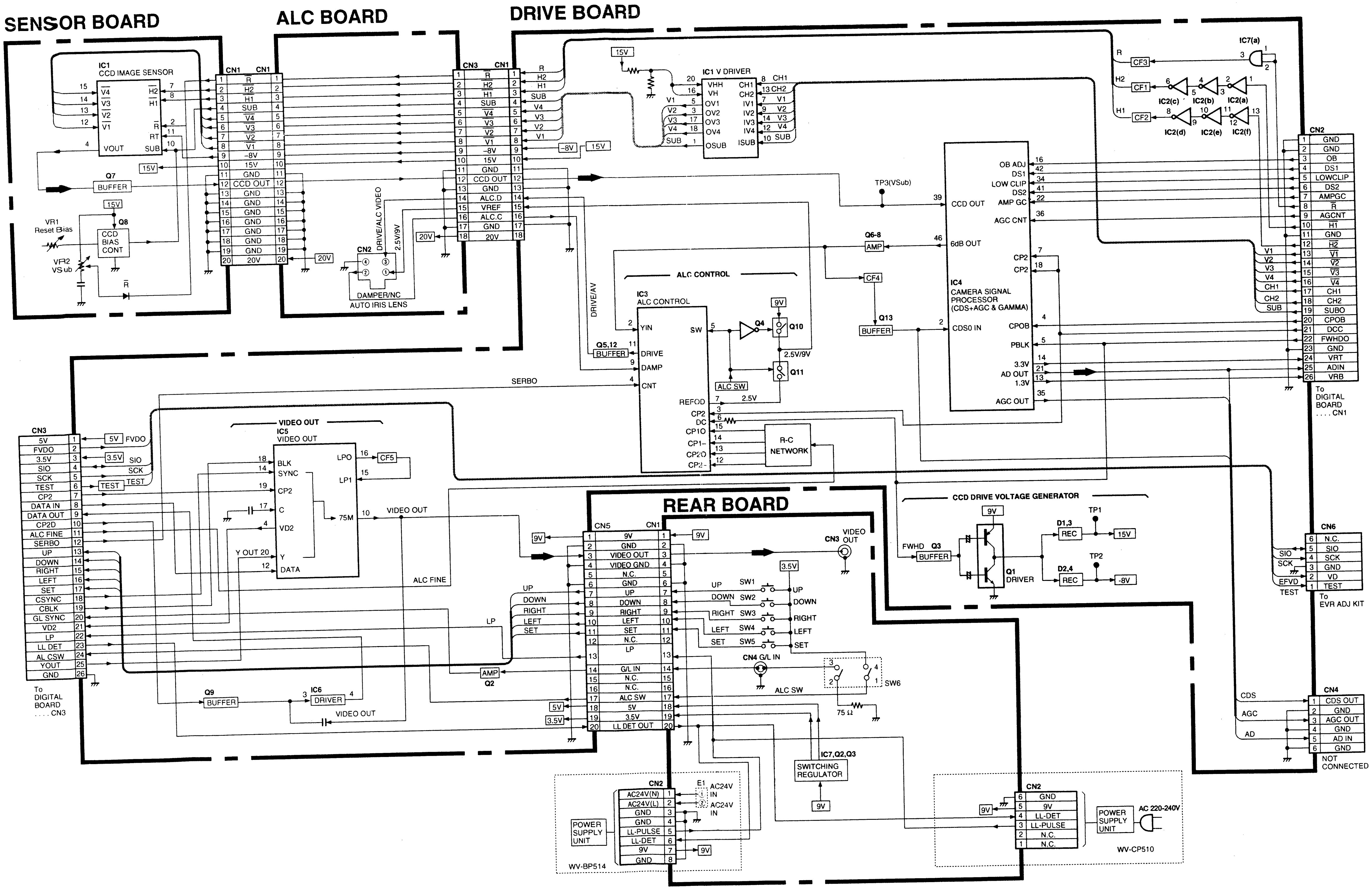
YWSC80206L



MA729



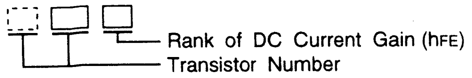
BLOCK DIAGRAM OF DRIVE BOARD


SENSOR BOARD
ALC BOARD
DRIVE BOARD
REAR BOARD
IC1 CCD IMAGE SENSOR
V4
V3
V2
V1
H2
H1
R
RT
VOUT
SUB
Q7 BUFFER
15V
Q8 CCD BIAS CONT
VR1 Reset Bias
VR2 VS ub
CN1
R
H2
H1
SUB
V4
V3
V2
V1
-8V
15V
GND
CCD OUT
GND
20V
CN2
DAMPER/NC AUTO IRIS LENS
DRIVE/ALC VIDEO
2.5V/9V
CN3
ALC.D
VREF
ALC.C
IC1 V DRIVER
VHH
VH
OV1
OV2
OV3
OV4
OSUB
CH1
CH2
IV1
IV2
IV3
IV4
ISUB
IC7(a)
CF3
CF1
CF2
IC2(a)
IC2(b)
IC2(c)
IC2(d)
IC2(e)
IC2(f)
TP3(VSub)
IC4 CAMERA SIGNAL PROCESSOR (CDS+AGC & GAMMA)
CCD OUT
6dB OUT
CDSO IN
OB ADJ
DS1
LOW CLIP
DS2
AMP GC
AGC CNT
CP2
CPOB
PBLK
3.3V
AD OUT
1.3V
AGC OUT
Q6-8 AMP
CF4
Q13 BUFFER
CN2
GND
OB
DS1
LOWCLIP
DS2
AMPGC
AGCNT
CH1
CH2
SUBO
CPOB
DCC
FWHDO
VRT
ADIN
VRB
To DIGITAL BOARD CN1
ALC CONTROL
IC3 ALC CONTROL
YIN
DRIVE
DAMP
CNT
SW
REFOD
CP2
DC
CP1O
CP1-
CP2O
CP2-
Q4
Q10
Q11
ALC SW
2.5V
R-C NETWORK
Q5,12 BUFFER
DRIVE/AV
SERBO
VIDEO OUT
IC5 VIDEO OUT
BLK
SYNC
CP2
C
VD2
Y
DATA
LPO
LP1
75M
CF5
Y OUT
CN3
5V
FVDO
3.5V
SIO
SCK
TEST
CP2
DATA IN
DATA OUT
CP2D
ALC FINE
SERBO
UP
DOWN
RIGHT
LEFT
SET
CSYNC
CBLK
GL SYNC
VD2
LP
LL DET
AL CSW
YOUT
GND
To DIGITAL BOARD CN3
Q9 BUFFER
IC6 DRIVER
Q2 AMP
CN5
CN1
9V
VIDEO OUT
VIDEO GND
N.C.
G/L IN
ALC SW
LL DET OUT
CN3 VIDEO OUT
SW1
SW2
SW3
SW4
SW5
CN4 G/L IN
SW6
75 Ω
IC7,Q2,Q3 SWITCHING REGULATOR
CCD DRIVE VOLTAGE GENERATOR
FWHD Q3 BUFFER
Q1 DRIVER
D1,3 REC
D2,4 REC
TP1
TP2
15V
-8V
CN6
N.C.
VD
EFVD
To EVR ADJ KIT
CN4
CDS OUT
AGC OUT
AD IN
CDS
AGC
AD
NOT CONNECTED
POWER SUPPLY UNIT
AC24V(N)
AC24V(L)
LL-PULSE
LL-DET
E1
AC24V IN
WV-BP514
AC 220-240V
WV-CP510

CHIP COMPONENTS

1. Chip Transistor

The transistor number is indicated on the top surface of the chip transistor using two alphabet letters or one numerical number and two alphabet letters.



Transistor Number

(Chip Transistor)

Letter	Transistor No.	Letter	Transistor No.
A	2SB709	X	2SD602A
B	2SB709A	Y	2SD601
C	2SB710	Z	2SD601A
D	2SB710A	1A	2SB799
E	2SA1022	1B	2SB814
F	2SA1034	1C	2SB902
H	2SA1035	1F	2SK321
I	2SB792	1K	2SK316
K	2SC2778	1L	2SK247
P	2SD814	1M	2SJ84
Q	2SD813	1N	2SK199
R	2SC2480	1O	2SK198
S	2SC2405	1T	2SC3077
T	2SC2406	1X	2SC2845
U	2SC2404	1Z	2SD1030
V	2SC2295	2B	2SK374
W	2SD602	2C	2SK116
BQ	2SB766A	UMT	2SC4081

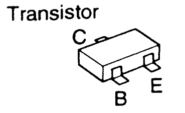
(Small Chip Transistor) (Pair Transistor)

Letter	Transistor No.
A	2SB1218
B	2SB1218A
D	2SB1219A
U	2SC3931
W	2SD1820
X	2SD1820A
Y	2SD1819
E3	2SA1226
OS	2SB1219
UC	2SA1532
YU	2SC3938

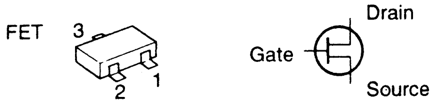
Letter	Transistor No.	Letter	Transistor No.
5R	XN1501	5H	XP4501
7S	XN1601	5C	XP4601
5H	XN4501	5H	XP4501
5C	XN4601	5L	XP5501
5L	XN5501	4N	XP5601
4N	XN5601	7S	XP6501
5N	XN6501	7W	XP6435
7W	XN6435	7F	XP6534
7F	XN6534	X1	UMX1
5R	XP1501	Z1	UMZ1
7S	XP1601		

Example:
WQ → 2SD602-Q
YQ → 2SD601-Q
1BS → 2SB814-S

Appearance and Symbols



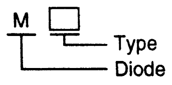
C: Collector
B: Bass
E: Emitter



	1	2	3
Eacept 2SK199	Drain	Source	Gate
2SK199	Gate	Drain	Source

2. Chip Diode

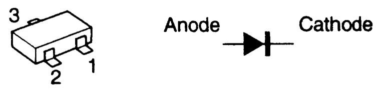
The diode number is indicated on the top surface of the chip diode using two alphabet letters.



Diode Number

	1	2	3
MA28/MA28W/MA28T	–	Anode	Cathode
MA151K/MA152K	–	Anode	Cathode
MA151A/MA152A	–	Cathode	Anode
MA151WK/MA152WK	Anode	Anode	Cathode
MA151WA/MA152WA	Cathode	Cathode	Anode
MA153	Cathode	Anode	Common
MA141K	–	Anode	Cathode
MA143	Anode	Cathode	Common
MA3062	Anode	–	Cathode
RD421D	Anode	–	Cathode

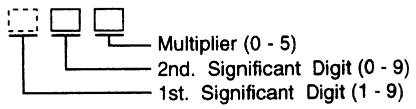
Appearance and Symbol



	1	2	3
MA28/MA28W/MA28T	–	Anode	Cathode
MA151K/MA152K	–	Anode	Cathode
MA151A/MA152A	–	Cathode	Anode
MA151WK/MA152WK	Anode	Anode	Cathode
MA151WA/MA152WA	Cathode	Cathode	Anode
MA153	Cathode	Anode	Common
MA141K	–	Anode	Cathode
MA143	Anode	Cathode	Common
MA3062	Anode	–	Cathode
RD421D	Anode	–	Cathode

3. Chip Resistor

The resistor value is indicated on the bottom surface of the chip resistor using three digit numbers.


Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Significant Digit (1 - 9)

Example:
330 → $33 \times 10^{0} = 33\ \Omega$
561 → $56 \times 10^{1} = 560\ \Omega$
123 → $12 \times 10^{3} = 12\ \mathrm{k}\Omega$

Note: Zero ohm resistor (jumper chip) is colored red or green.

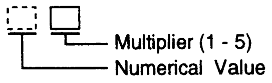
4. Chip Capacitor

The capacitive value of replacement chip capacitors is indicated on the bottom surface. original parts do not have value indication.

If the capacitive value is less than 100 pF, the value will be indicated by one or two digit number expressing the capacity directly in pF.

Example:
0.5 → 0.5 pF 2.5 → 2.5 pF
.75 → 0.75 pF 33 → 33 pF
1 → 1 pF 82 → 82 pF

If the capacitive value is 100 pF or greater, the value will be indicated by an alpha-numeric code. The letter precedes the number and expresses a numerical value to be multiplied by the number which follows.



Numerical Value

Letter	Value	Letter	Value
A	10	N	33
B	11	P	36
C	12	Q	39
D	13	R	43
E	15	S	47
F	16	T	51
G	18	U	56
H	20	V	62
J	22	W	68
K	24	X	75
L	27	Y	82
M	30	Z	91

* Letters I and O are not used.

Example:
A1 → 10×10^{1} = 100 pF
N2 → 33×10^{2} = 3300 pF
S3 → 47×10^{3} = 47000 pF

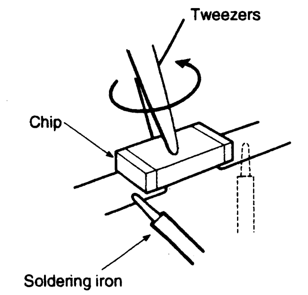
5. Precautions in replacing the chip component

1. Make sure that the unit is turned OFF when replacing the chip.
2. Use tweezers to prevent any damage to the chip surface.
3. Do not re-use the chips after removal.
4. Do not rub the electrode of chips.
5. Do not subject the chips to excessive stress.
6. It is recommended that a pencil-type soldering iron to be used.
7. The solder whose diameter is less than 0.5 mm is recommended.
8. Do not heat the chip beyond 3 second.
9. Maintain temperature control under 260°C (500°F) when soldering.

5-1. Removal (Transistor, Diode, Resistor and Capacitor)

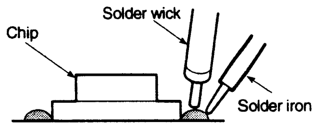
1. Add the solder to both ends of the chip (three leads for chip transistor).
2. While attaching the soldering iron to both ends of the chip (three leads for chip transistor) as shown below, remove the chip by turning with tweezers.

Note: Be careful not to damage other chips.

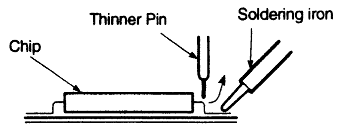


5-2. Removal (IC)

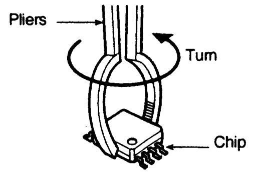
1. Add the solder wick and soldering iron to each lead of the IC and remove solder.



2. Add the soldering iron to each lead of the IC and left each lead of the IC using thinner pin.

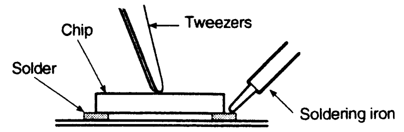


3. Remove IC turning it with pliers.

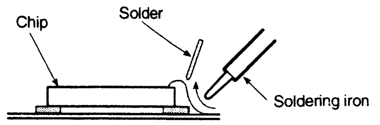


5-3. Mounting

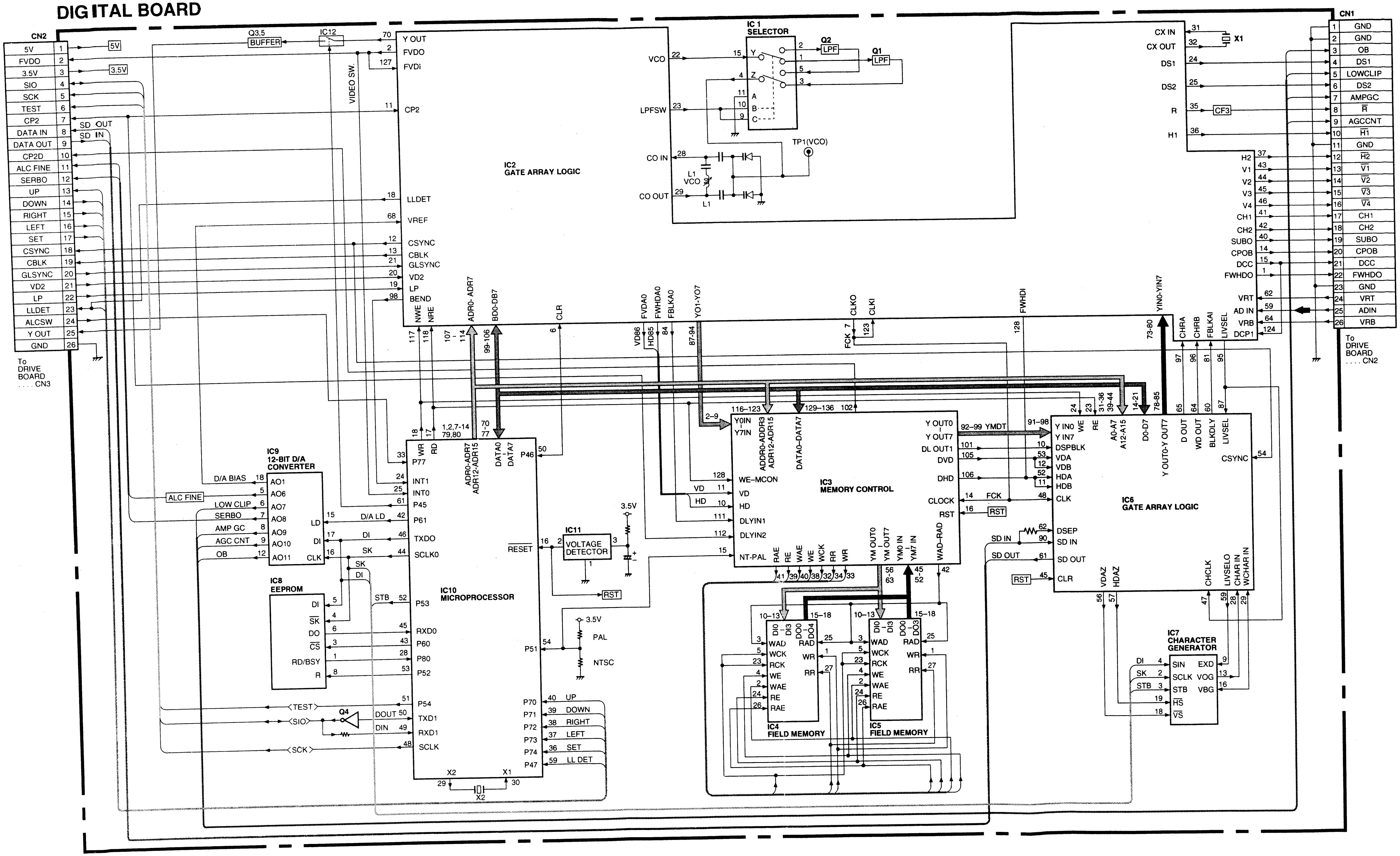
1. Place the solder thinly on the chip mounting foil.
2. Solder the chip temporarily while holding the chip with the tweezers.



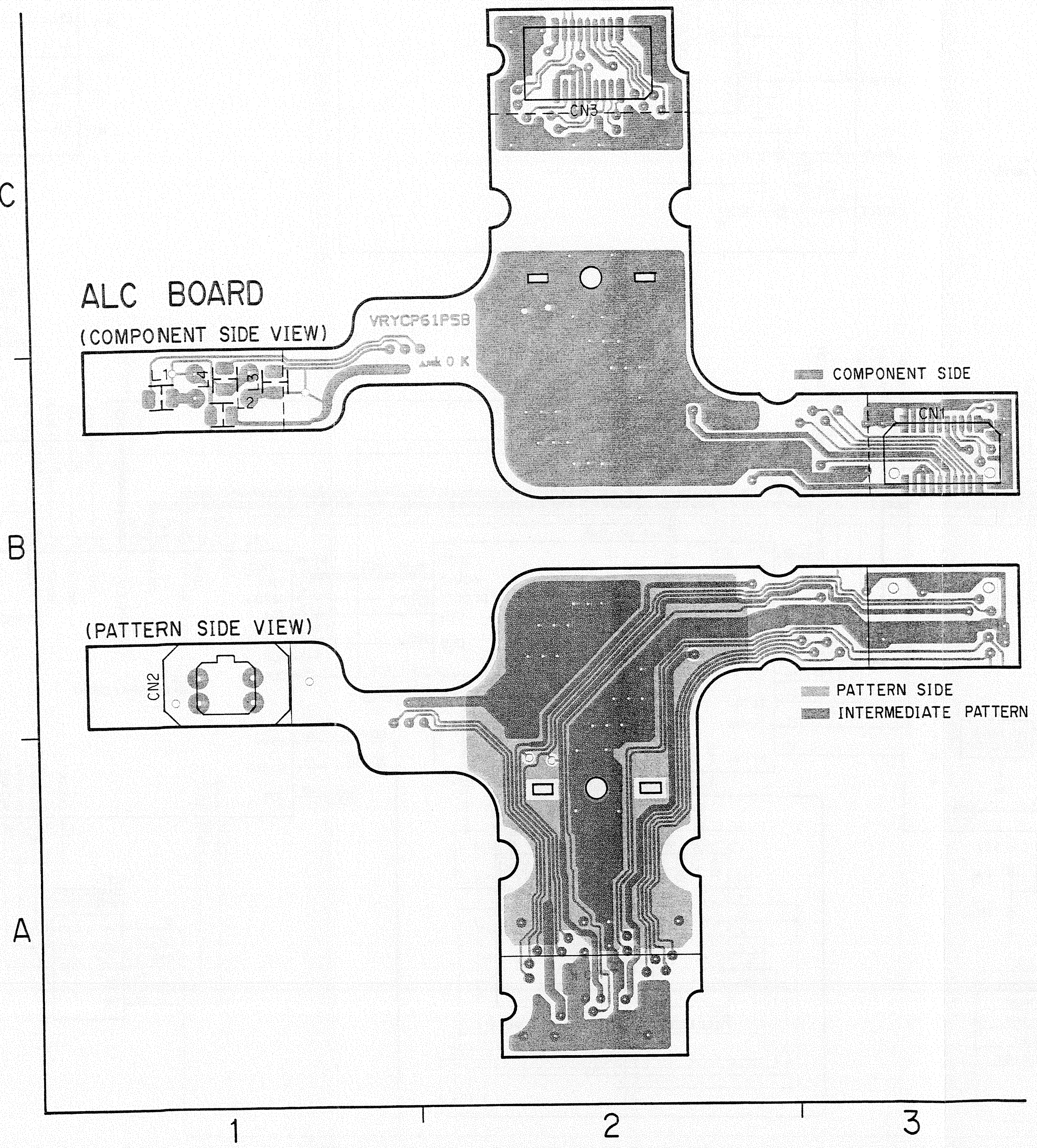
3. Solder both ends of chip (three leads for chip transistor).



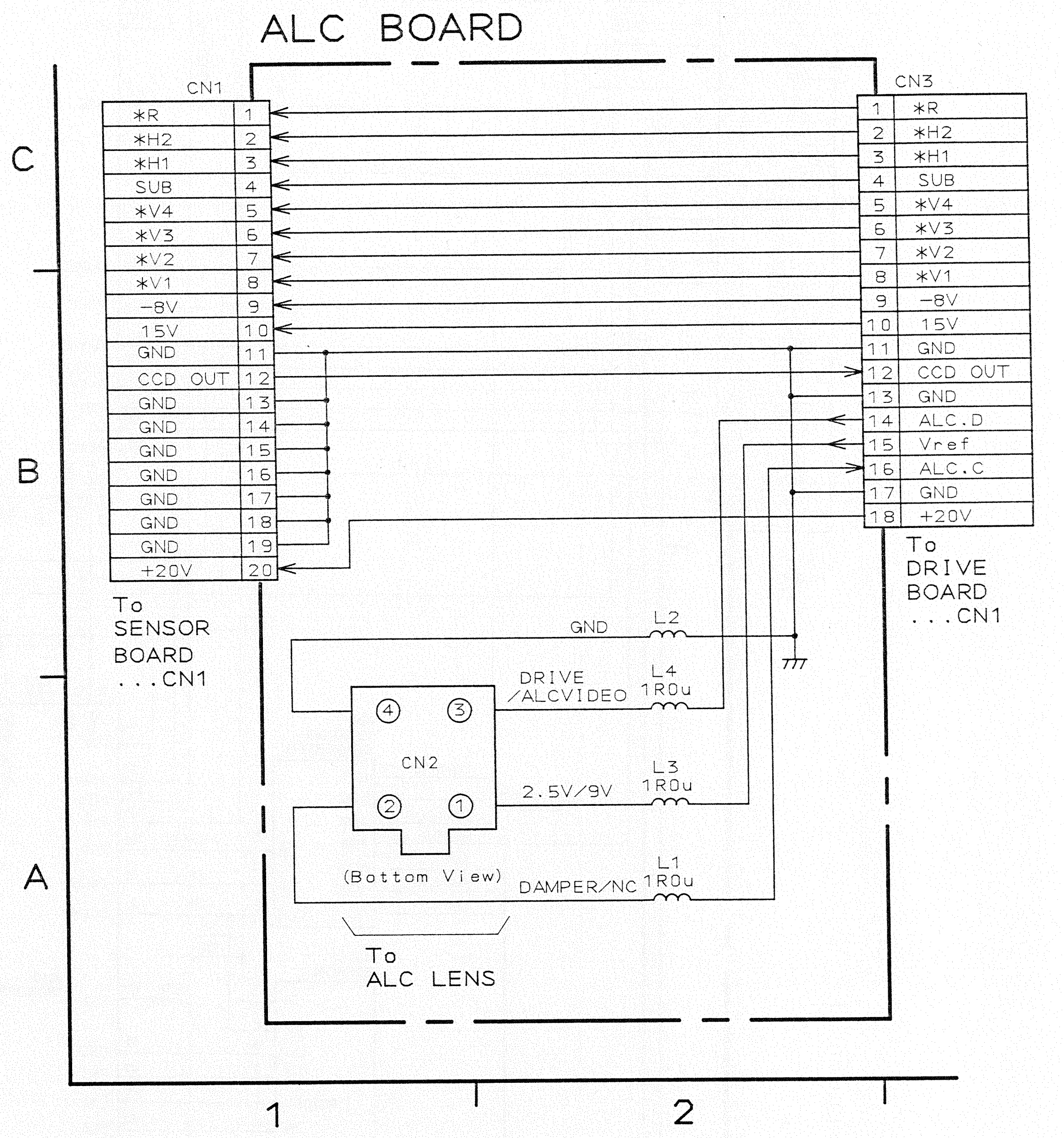
BLOCK DIAGRAM OF DIGITAL BOARD


DIGITAL BOARD
CN2
5V
FVDO
3.5V
SIO
SCK
TEST
CP2
DATA IN
DATA OUT
CP2D
ALC FINE
SERBO
UP
DOWN
RIGHT
LEFT
SET
CSYNC
CBLK
GLSYNC
VD2
LP
LLDET
ALCSW
Y OUT
GND
To DRIVE BOARD CN3
SD OUT
SD IN
Q3,5 BUFFER
IC12
VIDEO SW.
IC2 GATE ARRAY LOGIC
Y OUT
FVDO
FVDi
CP2
LLDET
VREF
CSYNC
CBLK
GLSYNC
VD2
LP
BEND
NWE
NRE
ADR0- ADR7
BD0-DB7
CLR
VCO
LPFSW
CO IN
CO OUT
L1 VCO
L1
FVDA0
FWHDA0
FBLKA0
YO1-YO7
CLKO
CLKI
FCK
FWHDI
IC 1 SELECTOR
Q2 LPF
Q1 LPF
TP1(VCO)
CX IN
CX OUT
X1
DS1
DS2
R
CF3
H1
H2
V1
V2
V3
V4
CH1
CH2
SUBO
CPOB
DCC
FWHDO
VRT
AD IN
VRB
DCP1
YIN0-YIN7
CHRA
CHRB
FBLKAI
LIVSEL
CN1
GND
GND
OB
DS1
LOWCLIP
DS2
AMPGC
R̅
AGCCNT
H̅1̅
GND
H̅2̅
V̅1̅
V̅2̅
V̅3̅
V̅4̅
CH1
CH2
SUBO
CPOB
DCC
FWHDO
GND
VRT
ADIN
VRB
To DRIVE BOARD CN2
IC9 12-BIT D/A CONVERTER
D/A BIAS
ALC FINE
LOW CLIP
SERBO
AMP GC
AGC CNT
OB
AO1
AO6
AO7
AO8
AO9
AO10
AO11
LD
DI
CLK
D/A LD
DI
SK
IC8 EEPROM
DI
S̅K̅
DO
C̅S̅
RD/BSY
R
STB
SK
DI
TEST
SIO
SCK
Q4
DOUT
DIN
IC10 MICROPROCESSOR
WR
RD
P77
INT1
INT0
P45
P61
TXDO
SCLK0
P53
RXD0
P60
P80
P52
P54
TXD1
RXD1
SCLK
ADR0-ADR7
ADR12-ADR15
DATA0
DATA7
P46
R̅E̅S̅E̅T̅
P51
P70
P71
P72
P73
P74
P47
UP
DOWN
RIGHT
LEFT
SET
LL DET
X2
X1
X2
IC11 VOLTAGE DETECTOR
3.5V
RST
PAL
NTSC
IC3 MEMORY CONTROL
Y0IN
Y7IN
ADDR0-ADDR3
ADR12-ADR15
DATA0-DATA7
WE-MCON
VD
HD
DLYIN1
DLYIN2
NT-PAL
RAE
RE
WAE
WE
WCK
RR
WR
YM OUT0
YM OUT7
YM0 IN
YM7 IN
WAD-RAD
Y OUT0
Y OUT7
DL OUT1
DVD
DHD
CLOCK
RST
YMDT
FCK
RST
IC4 FIELD MEMORY
IC5 FIELD MEMORY
DI0-DI3
DO0-DO4
DO0-DO3
WAD
WCK
RCK
WE
WAE
RE
RAE
RAD
WR
RR
IC6 GATE ARRAY LOGIC
Y IN0
Y IN7
WE
RE
A0-A7
A12-A15
D0-D7
Y OUT0-Y OUT7
D OUT
WD OUT
BLKDLY
LIVSEL
DSPBLK
VDA
VDB
HDA
HDB
CLK
CSYNC
DSEP
SD IN
SD OUT
CLR
SD IN
SD OUT
RST
VDAZ
HDAZ
CHCLK
LIVSELO
CHAR IN
WCHAR IN
IC7 CHARACTER GENERATOR
DI
SK
STB
SIN
SCLK
STB
H̅S̅
V̅S̅
EXD
VOG
VBG

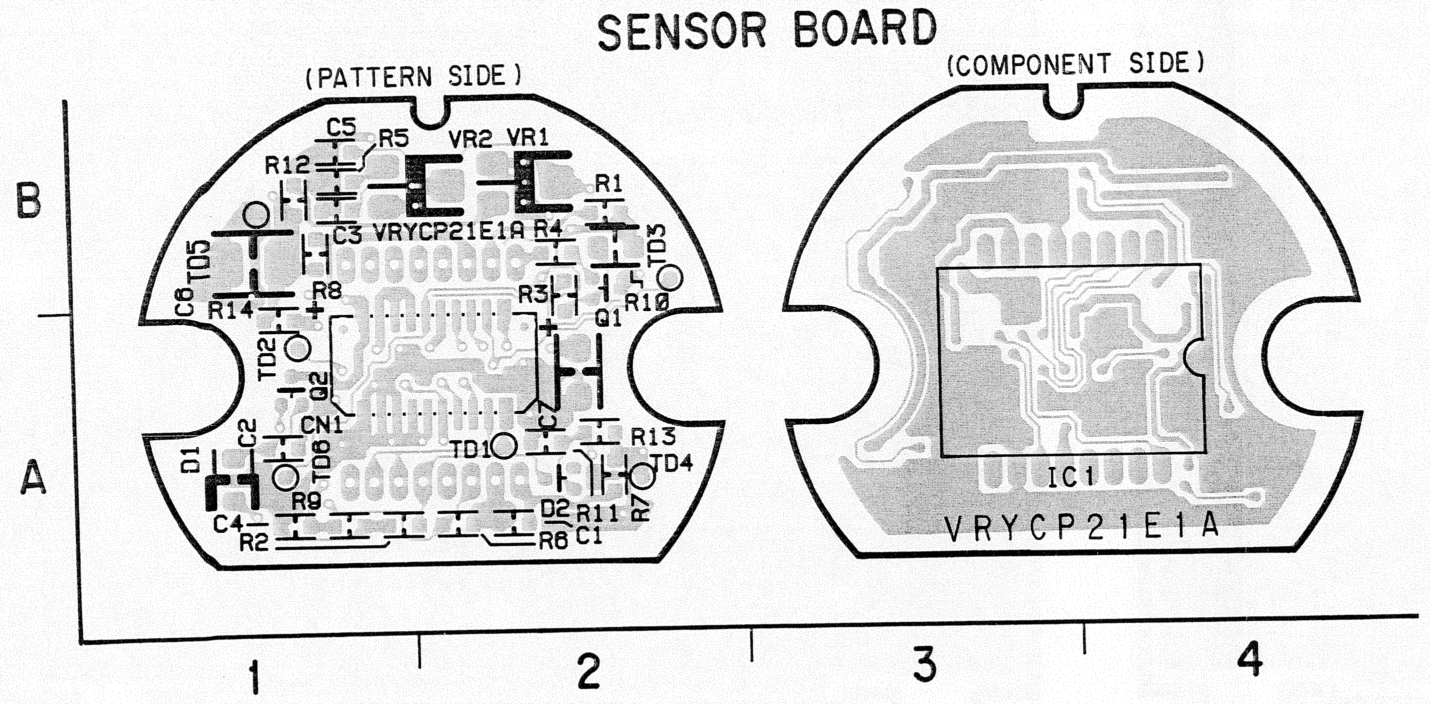
CONDUCTOR VIEW OF ALC BOARD


C
B
A
1
2
3
ALC BOARD
(COMPONENT SIDE VIEW)
VRYCP61P5B
CN3
CN1
L1
L2
4
3
COMPONENT SIDE
(PATTERN SIDE VIEW)
CN2
PATTERN SIDE
INTERMEDIATE PATTERN

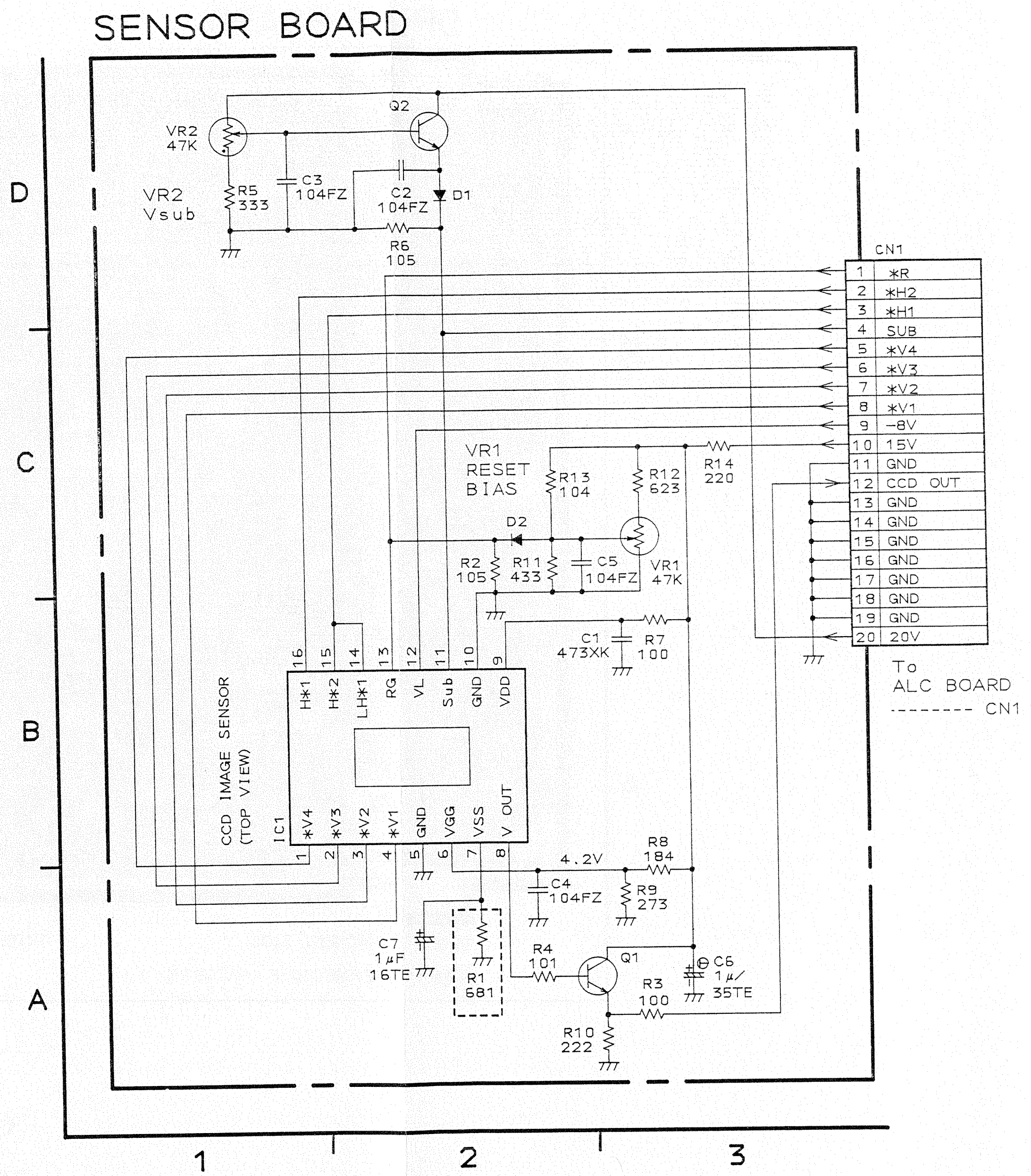
SCHEMATIC DIAGRAM OF ALC BOARD


ALC BOARD
CN1
*R 1
*H2 2
*H1 3
SUB 4
*V4 5
*V3 6
*V2 7
*V1 8
-8V 9
15V 10
GND 11
CCD OUT 12
GND 13
GND 14
GND 15
GND 16
GND 17
GND 18
GND 19
+20V 20
To SENSOR BOARD ...CN1
CN3
1 *R
2 *H2
3 *H1
4 SUB
5 *V4
6 *V3
7 *V2
8 *V1
9 -8V
10 15V
11 GND
12 CCD OUT
13 GND
14 ALC.D
15 Vref
16 ALC.C
17 GND
18 +20V
To DRIVE BOARD ...CN1
GND
L2
DRIVE /ALCVIDEO
L4 1R0u
CN2
④ ③
② ①
2.5V/9V
L3 1R0u
(Bottom View)
DAMPER/NC
L1 1R0u
To ALC LENS
C
B
A
1
2

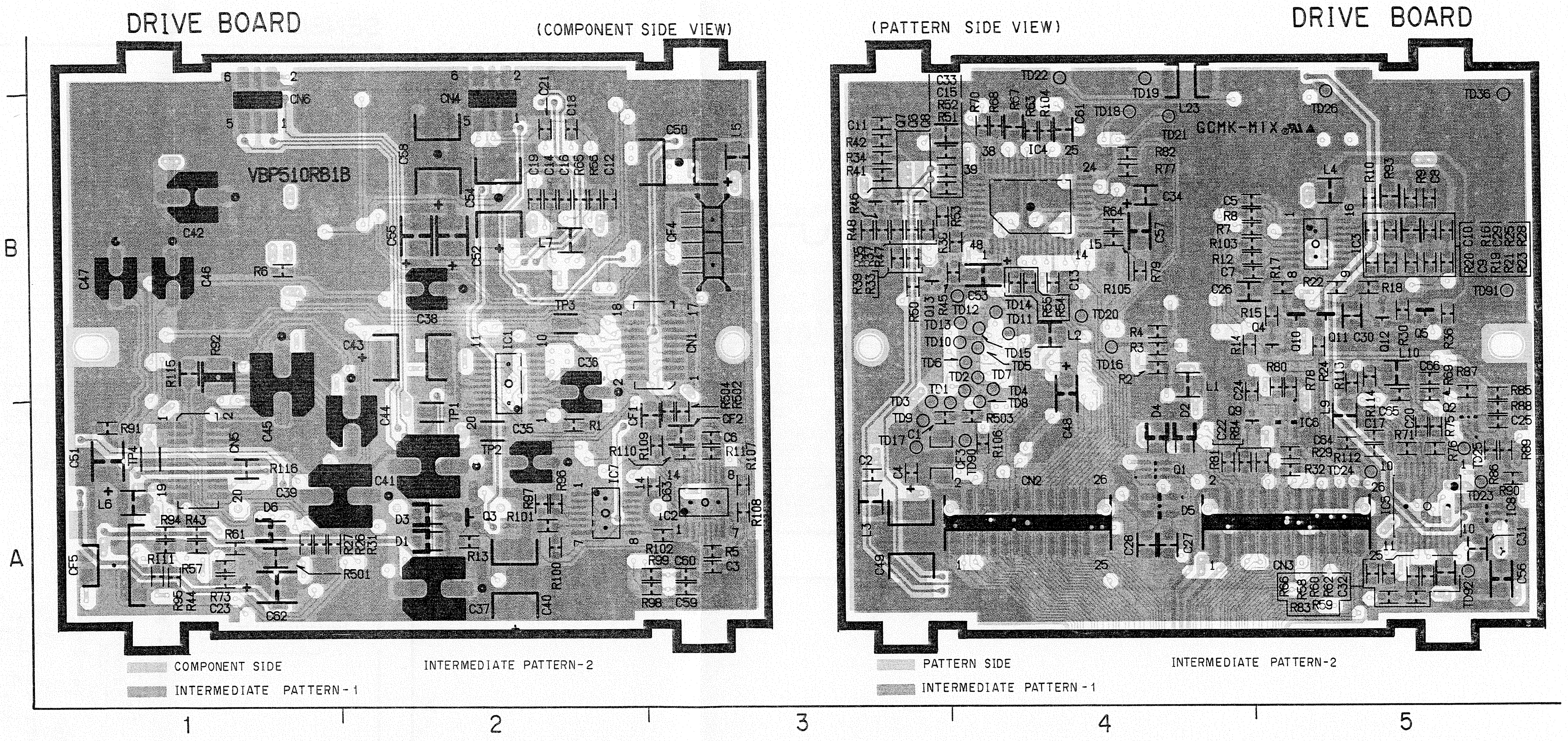
CONDUCTOR VIEW OF SENSOR BOARD


SENSOR BOARD
(PATTERN SIDE)
(COMPONENT SIDE)
C5
R5
VR2
VR1
R12
R1
C3
VRYCP21E1A
R4
TD5
TD3
C6
R14
R8
R3
R10
Q1
TD2
Q2
C2
CN1
R13
D1
TD6
TD1
C7
TD4
R9
D2
R11
R7
C4
R2
R6
C1
IC1
VRYCP21E1A
B
A
1
2
3
4

SCHEMATIC DIAGRAM OF SENSOR BOARD


SENSOR BOARD
VR2 47K
Q2
VR2 Vsub
R5 333
C3 104FZ
C2 104FZ
D1
R6 105
CN1
1 *R
2 *H2
3 *H1
4 SUB
5 *V4
6 *V3
7 *V2
8 *V1
9 −8V
10 15V
11 GND
12 CCD OUT
13 GND
14 GND
15 GND
16 GND
17 GND
18 GND
19 GND
20 20V
To ALC BOARD -------- CN1
VR1 RESET BIAS
R13 104
R12 623
R14 220
D2
R2 105
R11 433
C5 104FZ
VR1 47K
C1 473XK
R7 100
CCD IMAGE SENSOR (TOP VIEW)
IC1
16 H*1
15 H*2
14 LH*1
13 RG
12 VL
11 Sub
10 GND
9 VDD
1 *V4
2 *V3
3 *V2
4 *V1
5 GND
6 VGG
7 VSS
8 V OUT
4.2V
R8 184
C4 104FZ
R9 273
C7 1μF 16TE
R1 681
R4 101
Q1
C6 1μ/ 35TE
R3 100
R10 222
D
C
B
A
1
2
3

CONDUCTOR VIEW OF DRIVE BOARD


DRIVE BOARD
(COMPONENT SIDE VIEW)
(PATTERN SIDE VIEW)
DRIVE BOARD
VBP510RB1B
GCMK-MIX
COMPONENT SIDE
INTERMEDIATE PATTERN-1
INTERMEDIATE PATTERN-2
PATTERN SIDE
INTERMEDIATE PATTERN-1
INTERMEDIATE PATTERN-2
B
A
1
2
3
4
5

〈Index〉

DRIVE BOARD

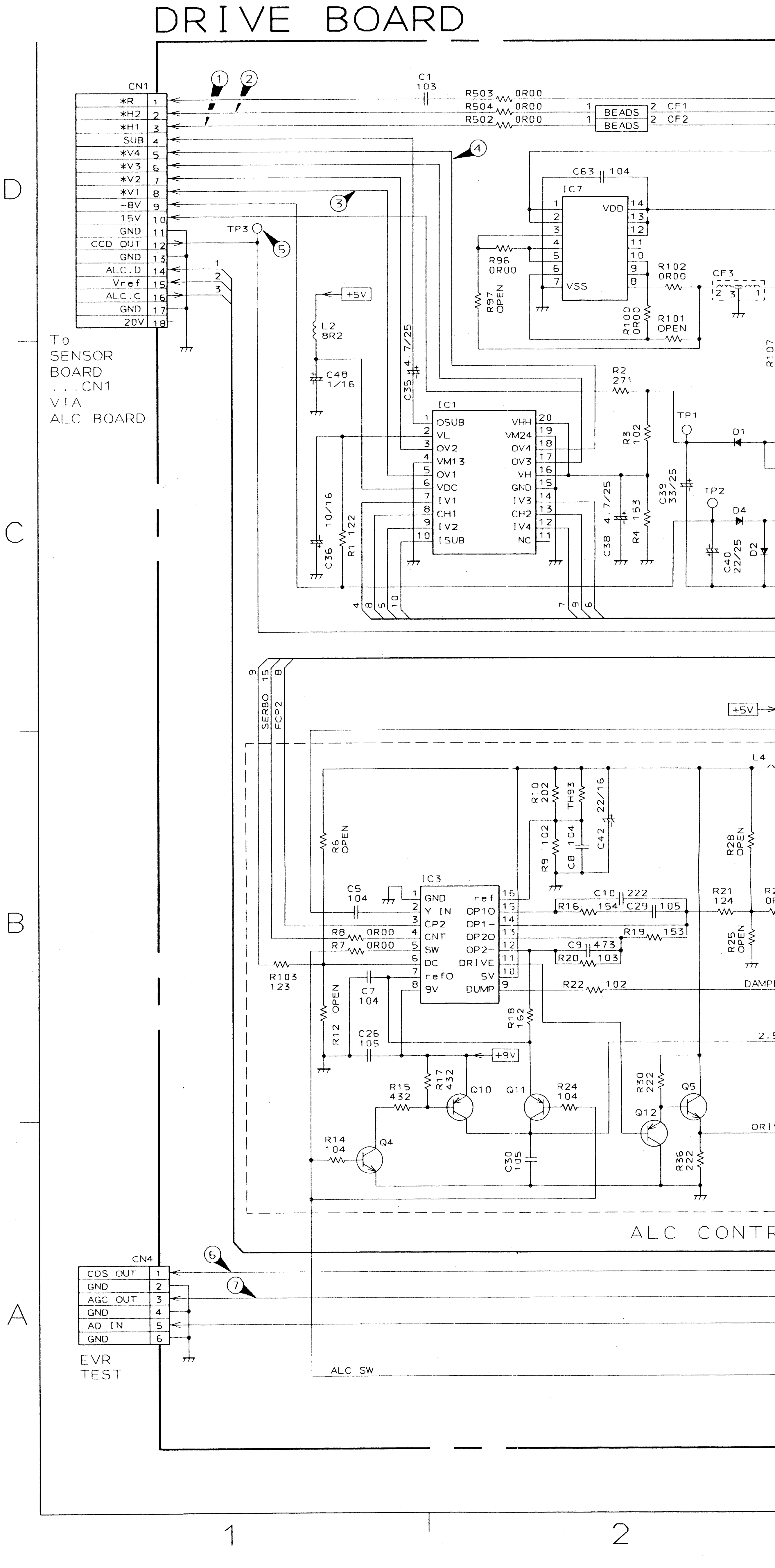
IC1	B2	Q7	B3
IC2	A3	Q8	B3
IC3	B5	Q9	A4
IC4	B4	Q10	B5
IC5	A5	Q11	B5
IC6	A5	Q12	B5
IC7	A2	Q13	B3
Q1	A4	D1	A2
Q2	A5	D2	A4
Q3	A2	D3	A2
Q4	B5	D4	A4
Q5	B5	D5	A4
Q6	B3	D6	A1

DRIVE BOARD

	IC1	IC2	IC3	IC4	IC5	IC6	IC7
Pin 1	-6.7	2.8	0	0	1.9	2.1	-0.2
2	-6.7	2.1	3.1	1.9	1.9	0	-0.2
3	-0.2	2.1	0.1	4.8	0	2.1	0.2
4	0	2.7	1.5	0	3.3	0	0.2
5	-6.2	2.7	0	0.6	1.9	4.8	0.2
6	5.0	2.2	1.5	0	0		0
7	3.2	0	2.4	0.1	1.9		0
8	3.5	2.7	9.0	1.9	4.8		4.9
9	0.1	2.2	1.7	2.2	1.9		0.3
10	3.5	2.2	4.9	1.9	1.7		0.3
11	0	2.7	0.2	4.8	2.4		0.2
12	0.2	2.7	2.6	1.9	0		0.2
13	3.4	2.3	4.1	1.3	1.6		0.2
14	3.3	4.9	4.0	3.4	3.0		4.9
15	0		0.1	0	2.0		
16	15.4		2.4	2.0	2.0		
17	-6.4			1.4	1.9		
18	-0.2			0.1	0.9		
19	0			0	0.2		
20	15.4			3.2	2.8		
21				1.4			
22				0.8			
23				2.9			
24				0			
25				0			
26				1.9			
27				2.1			
28				0			
29				1.9			
30				0			
31				1.9			
32				1.9			
33				0			
34				1.2			
35				1.1			
36				1.8			
37				1.8			
38				0			
39				2.8			
40				4.8			
41				0.8			
42				0.8			
43				0			
44				0			
45				0			
46				1.5			
47				1.4			
48				0			

	Q1	Q2
Pin 1	7.3	3.2
2	8.2	2.9
3	8.7	3.4
4	7.3	1.0
5	-0.3	0
6	0	0

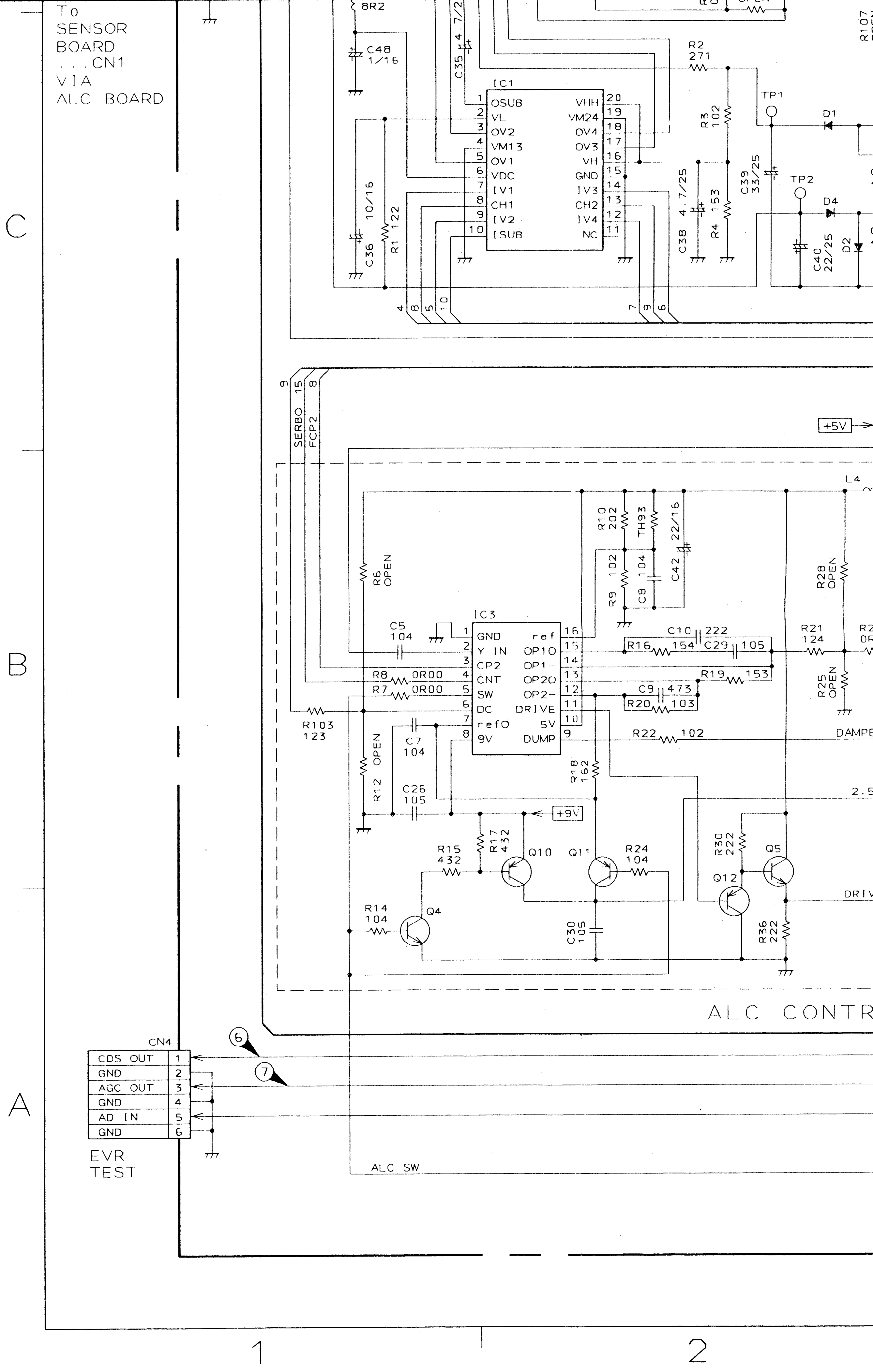
	B	C	E
Q3	0.6	8.7	1.5
4	0	9.0	0
5	0.8	4.9	0.3
6	2.0	4.8	1.4
7	1.5	2.0	0.8
8	1.5	4.8	0.8
9	0.1	2.1	1.9
10	9.0	2.4	9.0
11	1.8	2.4	2.4
12	0.2	0	0.8
13	0.7	0	1.3


DRIVE BOARD
D
C
B
A
1
2
CN1
*R
*H2
*H1
SUB
*V4
*V3
*V2
*V1
-8V
15V
GND
CCD OUT
GND
ALC.D
Vref
ALC.C
GND
20V
To SENSOR BOARD ...CN1 VIA ALC BOARD
TP3
C1 103
R503 0R00
R504 0R00
R502 0R00
BEADS
CF1
CF2
C63 104
IC7
VDD
VSS
R96 0R00
R97 OPEN
R102 0R00
CF3
R100 0R00
R101 OPEN
+5V
L2 8R2
C48 1/16
C35 4.7/25
R2 271
IC1
OSUB
VL
OV2
VM13
OV1
VDC
IV1
CH1
IV2
ISUB
VHH
VM24
OV4
OV3
VH
GND
IV3
CH2
IV4
NC
R3 102
C39 33/25
TP1
D1
TP2
D4
C38 4.7/25
R4 153
C40 22/25
D2
C36 10/16
R1 122
R107
SERBO
FCP2
+5V
L4
R10 202
TH93
C42 22/16
R9 102
C8 104
R6 OPEN
R28 OPEN
IC3
GND
Y IN
CP2
CNT
SW
DC
refO
9V
ref
OP1O
OP1-
OP2O
OP2-
DRIVE
5V
DUMP
C5 104
R8 0R00
R7 0R00
C10 222
R16 154
C29 105
R19 153
C9 473
R20 103
R21 124
R25 OPEN
R22 102
DAMP
R103 123
C7 104
R12 OPEN
R18 162
C26 105
+9V
R15 432
R17 432
Q10
Q11
R24 104
R30 222
Q5
Q12
R14 104
Q4
C30 105
R36 222
DRI
ALC CONTR
CN4
CDS OUT
GND
AGC OUT
GND
AD IN
GND
EVR TEST
ALC SW

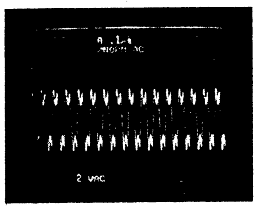
13	3.4	2.3	4.1	1.3	1.6		0.2
14	3.3	4.9	4.0	3.4	3.0		4.9
15	0		0.1	0	2.0		
16	15.4		2.4	2.0	2.0		
17	-6.4			1.4	1.9		
18	-0.2			0.1	0.9		
19	0			0	0.2		
20	15.4			3.2	2.8		
21				1.4			
22				0.8			
23				2.9			
24				0			
25				0			
26				1.9			
27				2.1			
28				0			
29				1.9			
30				0			
31				1.9			
32				1.9			
33				0			
34				1.2			
35				1.1			
36				1.8			
37				1.8			
38				0			
39				2.8			
40				4.8			
41				0.8			
42				0.8			
43				0			
44				0			
45				0			
46				1.5			
47				1.4			
48				0			

	Q1	Q2
Pin 1	7.3	3.2
2	8.2	2.9
3	8.7	3.4
4	7.3	1.0
5	-0.3	0
6	0	0

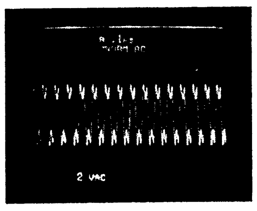
	B	C	E
Q3	0.6	8.7	1.5
4	0	9.0	0
5	0.8	4.9	0.3
6	2.0	4.8	1.4
7	1.5	2.0	0.8
8	1.5	4.8	0.8
9	0.1	2.1	1.9
10	9.0	2.4	9.0
11	1.8	2.4	2.4
12	0.2	0	0.8
13	0.7	0	1.3


To SENSOR BOARD ...CN1 VIA ALC BOARD
C
B
A
1
2
IC1
OSUB
VL
OV2
VM13
OV1
VDC
IV1
CH1
IV2
ISUB
VHH
VM24
OV4
OV3
VH
GND
IV3
CH2
IV4
NC
8R2
C48 1/16
C35 4.7/2
C36 10/16
R1 122
R2 271
R3 102
R4 153
C38 4.7/25
C39 33/25
C40 22/25
TP1
TP2
D1
D2
D4
R107
SERBO
FCP2
+5V
L4
IC3
GND
Y IN
CP2
CNT
SW
DC
refO
9V
ref
OP1O
OP1-
OP2O
OP2-
DRIVE
5V
DUMP
R10 202
TH93
22/16
R9 102
C8 104
C42
R6 OPEN
C5 104
C10 222
R16 154
C29 105
R8 0R00
R7 0R00
R19 153
C9 473
R20 103
R103 123
C7 104
R22 102
R12 OPEN
R18 162
C26 105
+9V
R15 432
R17 432
Q10
Q11
R24 104
R30 222
Q5
Q12
R14 104
Q4
C30 105
R36 222
R28 OPEN
R21 124
R25 OPEN
DAMPE
2.5
DRIV
ALC CONTR
⑥
⑦
CN4
CDS OUT
GND
AGC OUT
GND
AD IN
GND
EVR TEST
ALC SW

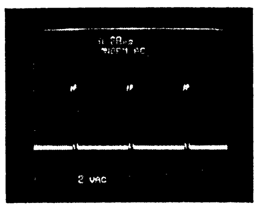
1. 0.1 µsec/DIV, 2V/DIV



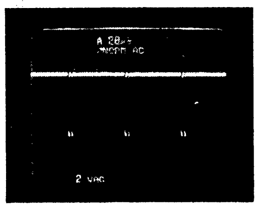
2. 0.1 µsec/DIV, 2V/DIV



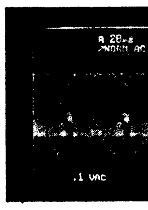
3. 20 µsec/DIV, 2V/DIV



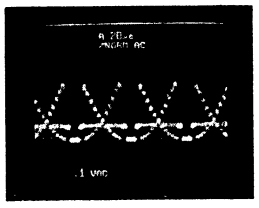
4. 20 µsec/DIV, 2V/DIV



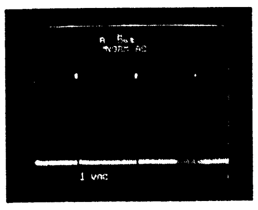
5. 20 µsec/DIV



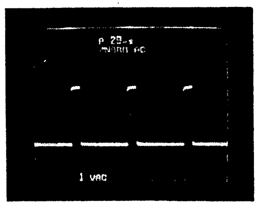
7. 20 µsec/DIV, 0.1V/DIV



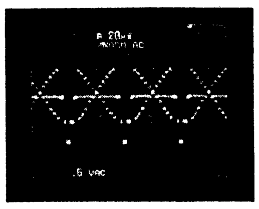
8. 5 msec/DIV, 1V/DIV



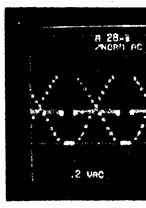
9. 20 µsec/DIV, 1V/DIV

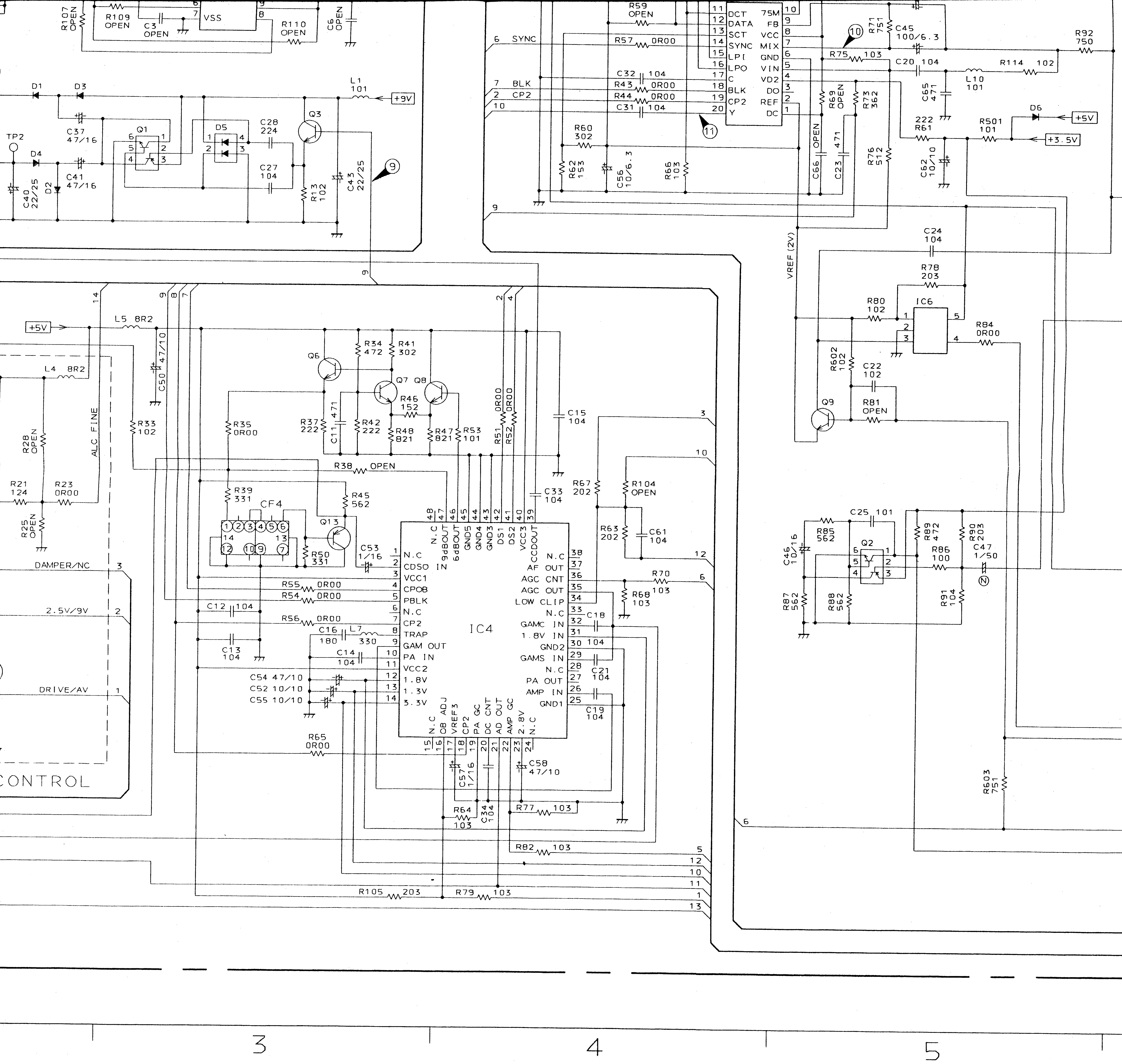


10. 20 µsec/DIV, 0.5V/DIV

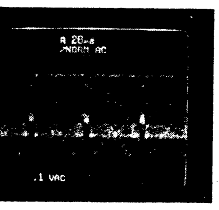


11. 20 µsec/D

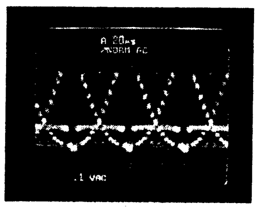



R107 OPEN
R109 OPEN
C3 OPEN
VSS
R110 OPEN
C6 OPEN
D1
D3
L1 101
+9V
C37 47/16
Q1
D5
C28 224
Q3
TP2
D4
C41 47/16
C27 104
C40 22/25
D2
R13 102
C43 22/25
9
R59 OPEN
DCT
DATA
SCT
SYNC
LPI
LPO
C
BLK
CP2
Y
75M
FB
VCC
MIX
GND
VIN
VD2
DO
REF
DC
R71 751
C45 100/6.3
10
6 SYNC
R57 0R00
R92 750
R75 103
C20 104
R114 102
7 BLK
2 CP2
10
C32 104
R43 0R00
R44 0R00
C31 104
R69 OPEN
R73 362
C65 471
L10 101
D6
+5V
222 R61
R501 101
+3.5V
11
R60 302
R62 153
C56 10/6.3
R66 103
C66 OPEN
C23 471
R76 512
C62 10/10
VREF (2V)
C24 104
R78 203
R80 102
IC6
R84 0R00
R602 102
C22 102
Q9
R81 OPEN
+5V
L5 8R2
C50 47/10
L4 8R2
14
ALC FINE
R28 OPEN
R21 124
R23 0R00
R25 OPEN
R33 102
Q6
R34 472
R41 302
Q7
Q8
R46 152
R35 0R00
R37 222
C11 471
R42 222
R48 821
R47 821
R53 101
R51 0R00
R52 0R00
C15 104
R38 OPEN
R39 331
CF4
R45 562
Q13
R50 331
C53 1/16
C33 104
R67 202
R104 OPEN
R63 202
C61 104
DAMPER/NC
2.5V/9V
DRIVE/AV
CONTROL
N.C
CDSO IN
VCC1
CPOB
PBLK
N.C
CP2
TRAP
GAM OUT
PA IN
VCC2
1.8V
1.3V
3.3V
N.C
9dBOUT
6dBOUT
GND5
GND4
GND3
DS1
DS2
VCC3
CCDOUT
N.C
AF OUT
AGC CNT
AGC OUT
LOW CLIP
N.C
GAMC IN
1.8V IN
GND2
GAMS IN
N.C
PA OUT
AMP IN
GND1
IC4
N.C
OB ADJ
VREF3
CP2
PA GC
DC CNT
AD OUT
AMP GC
2.8V
N.C
R55 0R00
R54 0R00
C12 104
R56 0R00
C16 180
L7 330
C14 104
C13 104
C54 47/10
C52 10/10
C55 10/10
C18 104
C21 104
C19 104
R70 103
R68 103
R65 0R00
C57 1/16
C58 47/10
R64 103
C34 104
R77 103
R82 103
R105 203
R79 103
C25 101
R85 562
C46 10/16
Q2
R89 472
R90 203
R86 100
C47 1/50
R87 562
R88 562
R91 104
R603 751
3
4
5

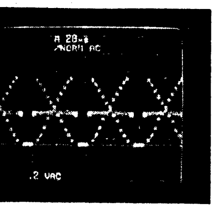
20µsec/DIV, 0.1V/DIV



6. 20µsec/DIV, 0.1V/DIV



. 20µsec/DIV, 0.2V/DIV



〈Index〉

DRIVE BOARD

IC1	C2	Q7	B3
IC2	D3	Q8	B3
IC3	B2	Q9	B5
IC4	B4	Q10	B2
IC5	D4	Q11	B2
IC6	B5	Q12	A2
IC7	D2	Q13	B3
Q1	C3	D1	C2
Q2	B5	D2	C2
Q3	C3	D3	C2
Q4	A1	D4	C2
Q5	A2	D5	C3
Q6	B3	D6	D6

Note: The value indicated in the sc

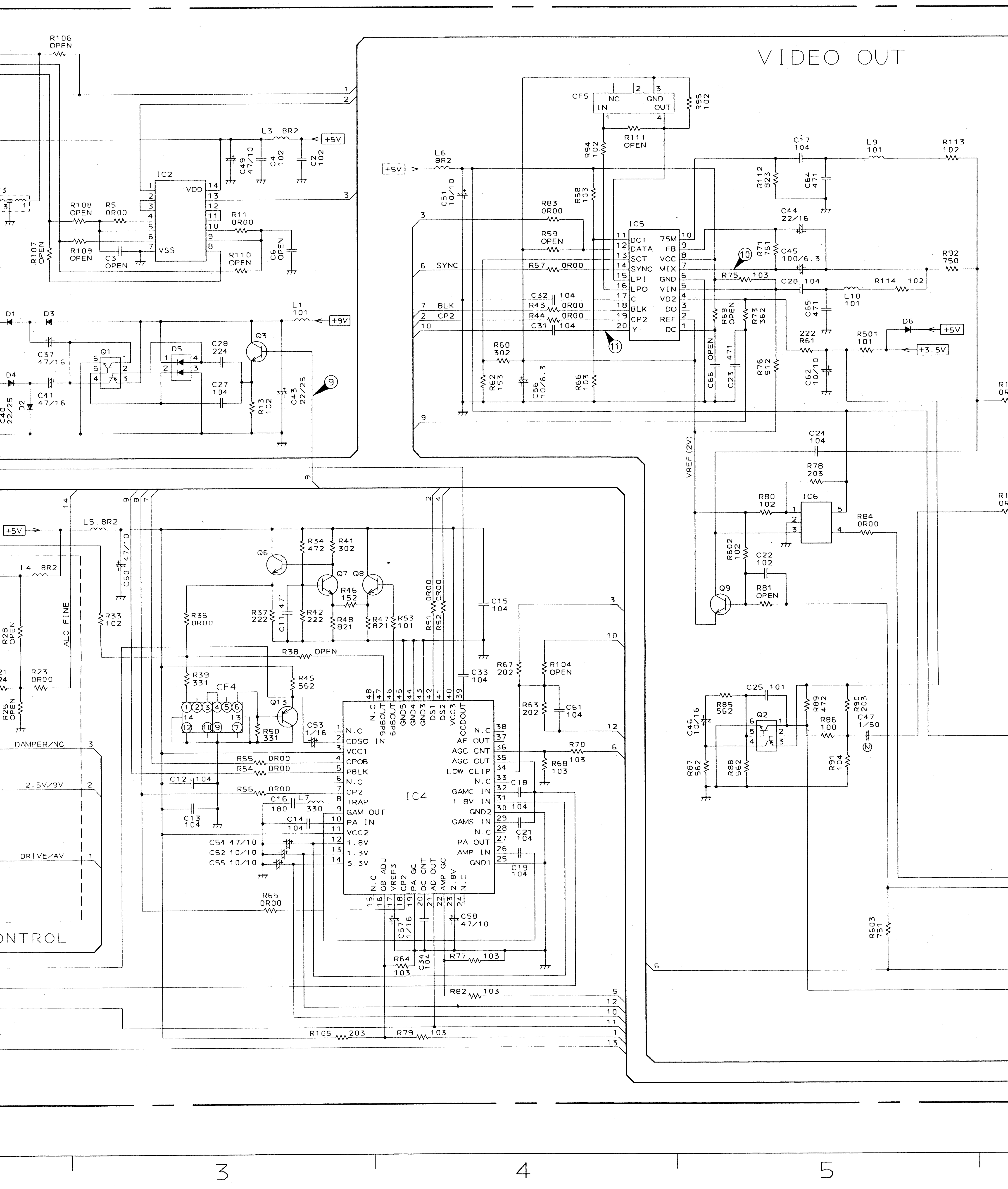
□ □ □
- Multiplier (0 - 5)
- 2nd. Significant Digit (
- 1st. Significant Digit (

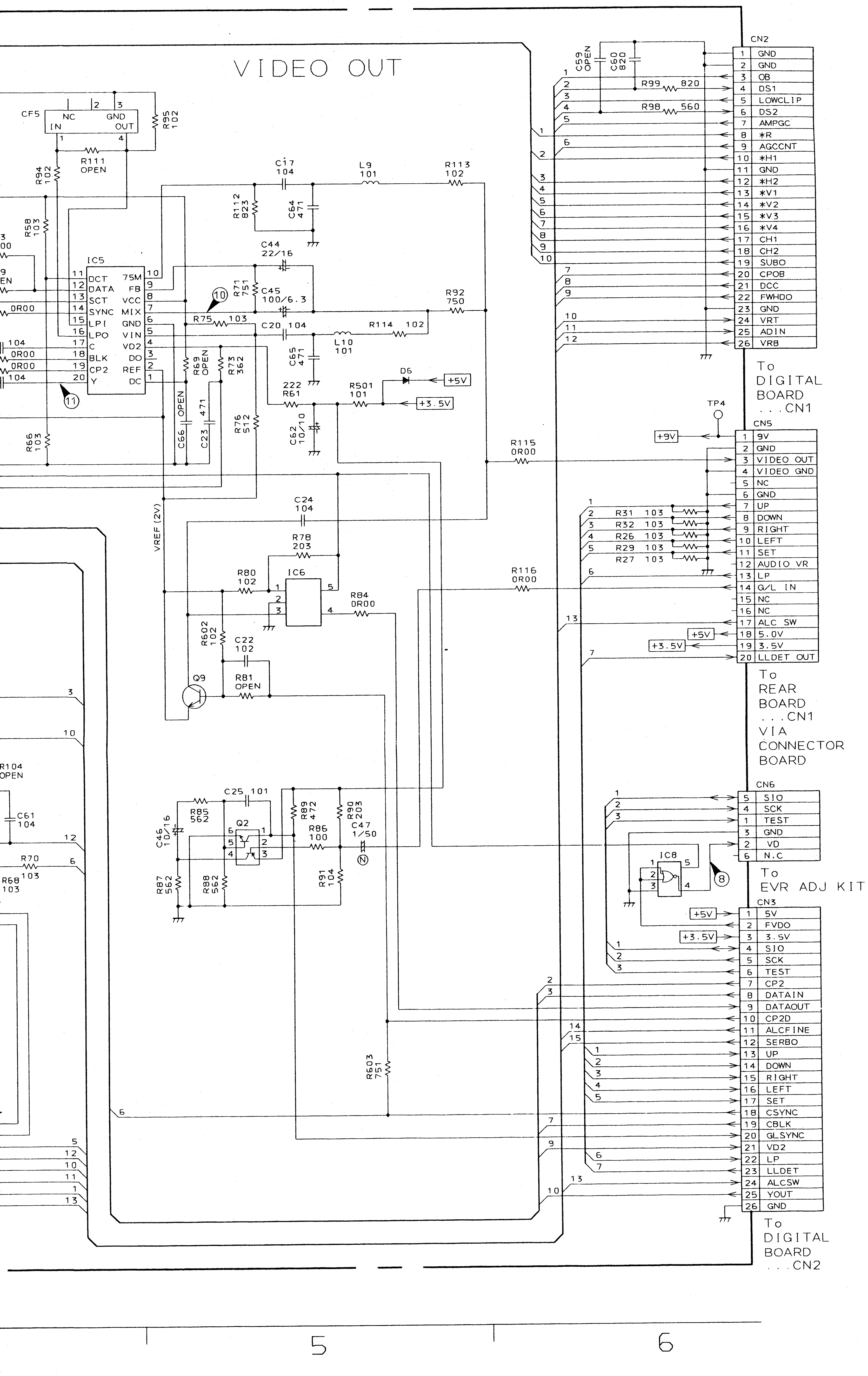
<Example>

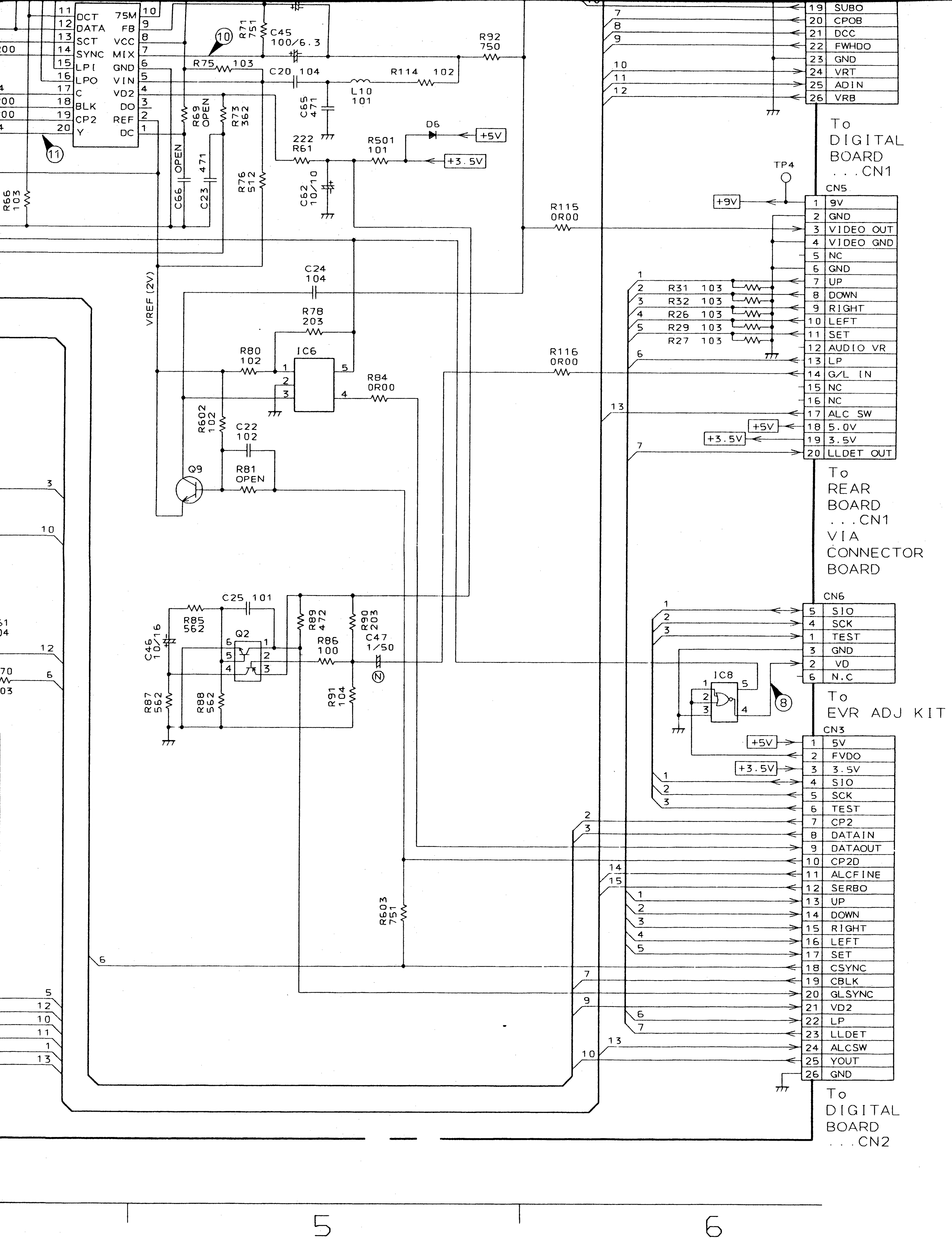
For Resistor:

330 → 33 x 10^0 = 33 Ω
561 → 56 x 10^1 = 560 Ω
123 → 12 x 10^3 = 12k Ω
0R00 = 0 Ω

CHEMATIC DIAGRAM OF DRIVE BOARD


VIDEO OUT
R106 OPEN
IC2
VDD
VSS
L3 8R2
+5V
C49 47/10
C4 102
C2 102
R108 OPEN
R5 0R00
R11 0R00
R109 OPEN
C3 OPEN
R107 OPEN
R110 OPEN
C6 OPEN
D1
D3
D4
D2
L1 101
+9V
Q1
Q3
D5
C28 224
C27 104
C37 47/16
C41 47/16
C40 22/25
R13 102
C43 22/25
⑨
CF5
NC
GND
IN
OUT
R95 102
R111 OPEN
R94 102
R58 103
L6 8R2
+5V
C51 10/10
R83 0R00
R59 OPEN
IC5
DCT
DATA
SCT
SYNC
LPI
LPO
C
BLK
CP2
Y
75M
FB
VCC
MIX
GND
VIN
VD2
DO
REF
DC
6 SYNC
7 BLK
2 CP2
10
R57 0R00
C32 104
R43 0R00
R44 0R00
C31 104
R60 302
R62 153
C56 10/6.3
R66 103
⑩
⑪
R75 103
R71 751
C45 100/6.3
C44 22/16
C17 104
C64 471
R112 823
L9 101
R113 102
R92 750
R114 102
C20 104
L10 101
C65 471
R69 OPEN
R73 362
C66 OPEN
C23 471
R76 512
222 R61
R501 101
D6
+5V
+3.5V
C62 10/10
C24 104
R78 203
VREF (2V)
IC6
R80 102
R84 0R00
R602 102
C22 102
Q9
R81 OPEN
L5 8R2
+5V
C50 47/10
L4 8R2
ALC FINE
R33 102
R28 OPEN
R23 0R00
R25 OPEN
DAMPER/NC
2.5V/9V
DRIVE/AV
ONTROL
Q6
R34 472
R41 302
Q7
Q8
R46 152
R37 222
C11 471
R42 222
R48 821
R47 821
R53 101
R51 0R00
R52 0R00
C15 104
R35 0R00
R38 OPEN
R39 331
CF4
R45 562
Q13
R50 331
C53 1/16
C33 104
R67 202
R104 OPEN
R63 202
C61 104
IC4
N.C
CDSO IN
VCC1
CPOB
PBLK
N.C
CP2
TRAP
GAM OUT
PA IN
VCC2
1.8V
1.3V
3.3V
9dBOUT
6dBOUT
GND5
GND4
GND3
DS1
DS2
VCC3
CCDOUT
AF OUT
AGC CNT
AGC OUT
LOW CLIP
GAMC IN
1.8V IN
GND2
GAMS IN
PA OUT
AMP IN
GND1
OB ADJ
VREF3
PA GC
DC CNT
AD OUT
AMP GC
2.8V
R55 0R00
R54 0R00
C12 104
R56 0R00
C16 180
L7 330
C13 104
C14 104
C54 47/10
C52 10/10
C55 10/10
R65 0R00
C57 1/16
C34 104
C58 47/10
R64 103
R77 103
R82 103
R105 203
R79 103
R70 103
R68 103
C18
C21 104
C19 104
C25 101
R85 562
C46 10/16
Q2
R89 472
R90 203
R86 100
C47 1/50
Ⓝ
R87 562
R88 562
R91 104
R603 751
3
4
5

VIDEO OUT
CF5
NC
GND
IN
OUT
R95 102
R111 OPEN
R94 102
R58 103
IC5
DCT
DATA
SCT
SYNC
LPI
LPO
C
BLK
CP2
Y
75M
FB
VCC
MIX
GND
VIN
VD2
DO
REF
DC
C17 104
L9 101
R113 102
R112 823
C64 471
C44 22/16
R71 751
C45 100/6.3
R92 750
R75 103
C20 104
R114 102
L10 101
C65 471
R69 OPEN
R73 362
222 R61
R501 101
D6
+5V
+3.5V
C66 OPEN
C23 471
R76 512
C62 10/10
R66 103
0R00
104
VREF (2V)
C24 104
R78 203
R80 102
IC6
R84 0R00
R602 102
C22 102
Q9
R81 OPEN
R115 0R00
R116 0R00
R104 OPEN
C61 104
R70 103
R68 103
C25 101
R85 562
C46 10/16
Q2
R89 472
R90 203
R86 100
C47 1/50
R87 562
R88 562
R91 104
R603 751
C59 OPEN
C60 820
R99 820
R98 560
CN2
GND
GND
OB
DS1
LOWCLIP
DS2
AMPGC
*R
AGCCNT
*H1
GND
*H2
*V1
*V2
*V3
*V4
CH1
CH2
SUBO
CPOB
DCC
FWHDO
GND
VRT
ADIN
VRB
To DIGITAL BOARD ...CN1
TP4
CN5
+9V
9V
GND
VIDEO OUT
VIDEO GND
NC
GND
UP
DOWN
RIGHT
LEFT
SET
AUDIO VR
LP
G/L IN
NC
NC
ALC SW
5.0V
3.5V
LLDET OUT
R31 103
R32 103
R26 103
R29 103
R27 103
To REAR BOARD ...CN1 VIA CONNECTOR BOARD
CN6
SIO
SCK
TEST
GND
VD
N.C
IC8
To EVR ADJ KIT
CN3
5V
FVDO
3.5V
SIO
SCK
TEST
CP2
DATAIN
DATAOUT
CP2D
ALCFINE
SERBO
UP
DOWN
RIGHT
LEFT
SET
CSYNC
CBLK
GLSYNC
VD2
LP
LLDET
ALCSW
YOUT
GND
To DIGITAL BOARD ...CN2
5
6


DCT
DATA
SCT
SYNC
LPI
LPO
C
BLK
CP2
Y
75M
FB
VCC
MIX
GND
VIN
VD2
DO
REF
DC
R71 751
C45 100/6.3
R92 750
R75 103
C20 104
R114 102
L10 101
C65 471
R69 OPEN
R73 362
222 R61
R501 101
D6
+5V
+3.5V
C66 OPEN
C23 471
R76 512
C62 10/10
R66 103
R115 0R00
C24 104
VREF (2V)
R78 203
R80 102
IC6
R84 0R00
R116 0R00
R602 102
C22 102
Q9
R81 OPEN
C25 101
R85 562
C46 10/16
Q2
R89 472
R90 203
R86 100
C47 1/50
R87 562
R88 562
R91 104
R603 751
R31 103
R32 103
R26 103
R29 103
R27 103
TP4
+9V
19 SUBO
20 CPOB
21 DCC
22 FWHDO
23 GND
24 VRT
25 ADIN
26 VRB
To DIGITAL BOARD ...CN1
CN5
1 9V
2 GND
3 VIDEO OUT
4 VIDEO GND
5 NC
6 GND
7 UP
8 DOWN
9 RIGHT
10 LEFT
11 SET
12 AUDIO VR
13 LP
14 G/L IN
15 NC
16 NC
17 ALC SW
18 5.0V
19 3.5V
20 LLDET OUT
To REAR BOARD ...CN1 VIA CONNECTOR BOARD
CN6
5 SIO
4 SCK
1 TEST
3 GND
2 VD
6 N.C
IC8
To EVR ADJ KIT
CN3
1 5V
2 FVDO
3 3.5V
4 SIO
5 SCK
6 TEST
7 CP2
8 DATAIN
9 DATAOUT
10 CP2D
11 ALCFINE
12 SERBO
13 UP
14 DOWN
15 RIGHT
16 LEFT
17 SET
18 CSYNC
19 CBLK
20 GLSYNC
21 VD2
22 LP
23 LLDET
24 ALCSW
25 YOUT
26 GND
To DIGITAL BOARD ...CN2
⑧
⑩
⑪
Ⓝ
5
6

Note: **The value indicated in the schematic diagram should be read as follows:**

□ □ □

Multiplier (0 - 5)

2nd. Significant Digit (0 - 9)

1st. Significant Digit (1 - 9)

<Example>

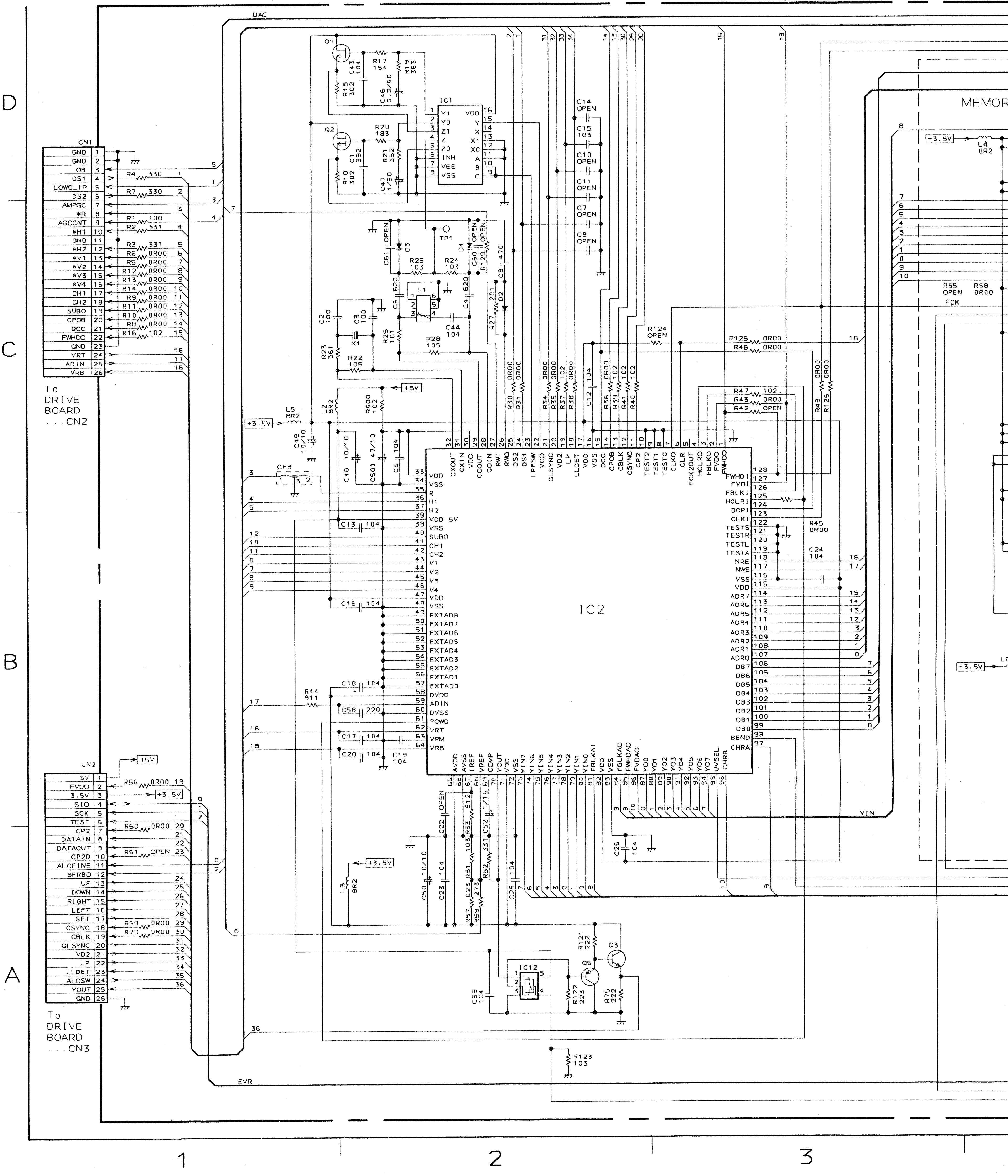
For Resistor:

330 → 33×10^0 = 33 Ω
561 → 56×10^1 = 560 Ω
123 → 12×10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:

820 → 82×10^0 = 82 pF
102 → 10×10^2 = 1000 pF = 0.001 µF
104 → 10×10^4 = 100000 pF = 0.1 µF
The suffix attached to capacitance indicates a type of capacitor.

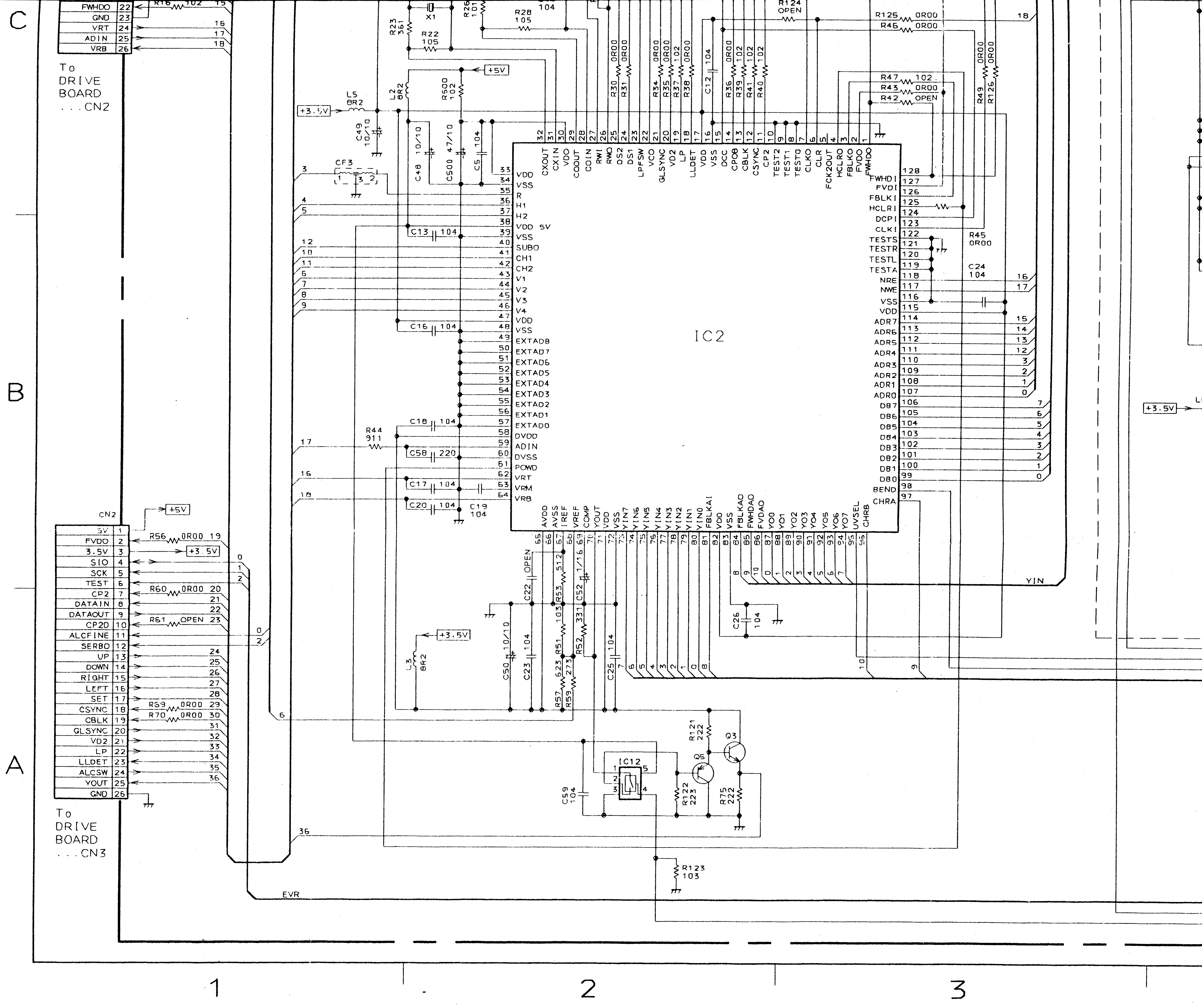
DIGITAL BOARD


D
C
B
A
1
2
3
DAC
EVR
CN1
GND
GND
OB
DS1
LOWCLIP
DS2
AMPGC
*R
AGCCNT
*H1
GND
*H2
*V1
*V2
*V3
*V4
CH1
CH2
SUBO
CPOB
DCC
FWHDO
GND
VRT
ADIN
VRB
To DRIVE BOARD ...CN2
CN2
5V
FVDO
3.5V
SIO
SCK
TEST
CP2
DATAIN
DATAOUT
CP20
ALCFINE
SERBO
UP
DOWN
RIGHT
LEFT
SET
CSYNC
CBLK
GLSYNC
VD2
LP
LLDET
ALCSW
YOUT
GND
To DRIVE BOARD ...CN3
+5V
+3.5V
IC1
IC2
IC12
Q1
Q2
Q3
Q6
L1
L2
L3
L4
L5
CF3
X1
TP1
D2
D3
D4
MEMOR
YIN
FCK

DIGITAL BOARD

	IC1	IC4	IC5	IC7	IC8	IC9	IC11	IC12
Pin 1	0	3.3	3.3	0	3.4	0	0	0.3
2	0	3.3	3.3	3.4	3.4	4.9	3.4	0.3
3	0.7	0	0	0	3.4	4.9	3.4	0
4	0.7	0.7	0.7	3.4	3.4	0		3.4
5	0.7	1.7	1.7	3.3	3.4	2.8		4.8
6	0	0	0	3.4	0	0.9		

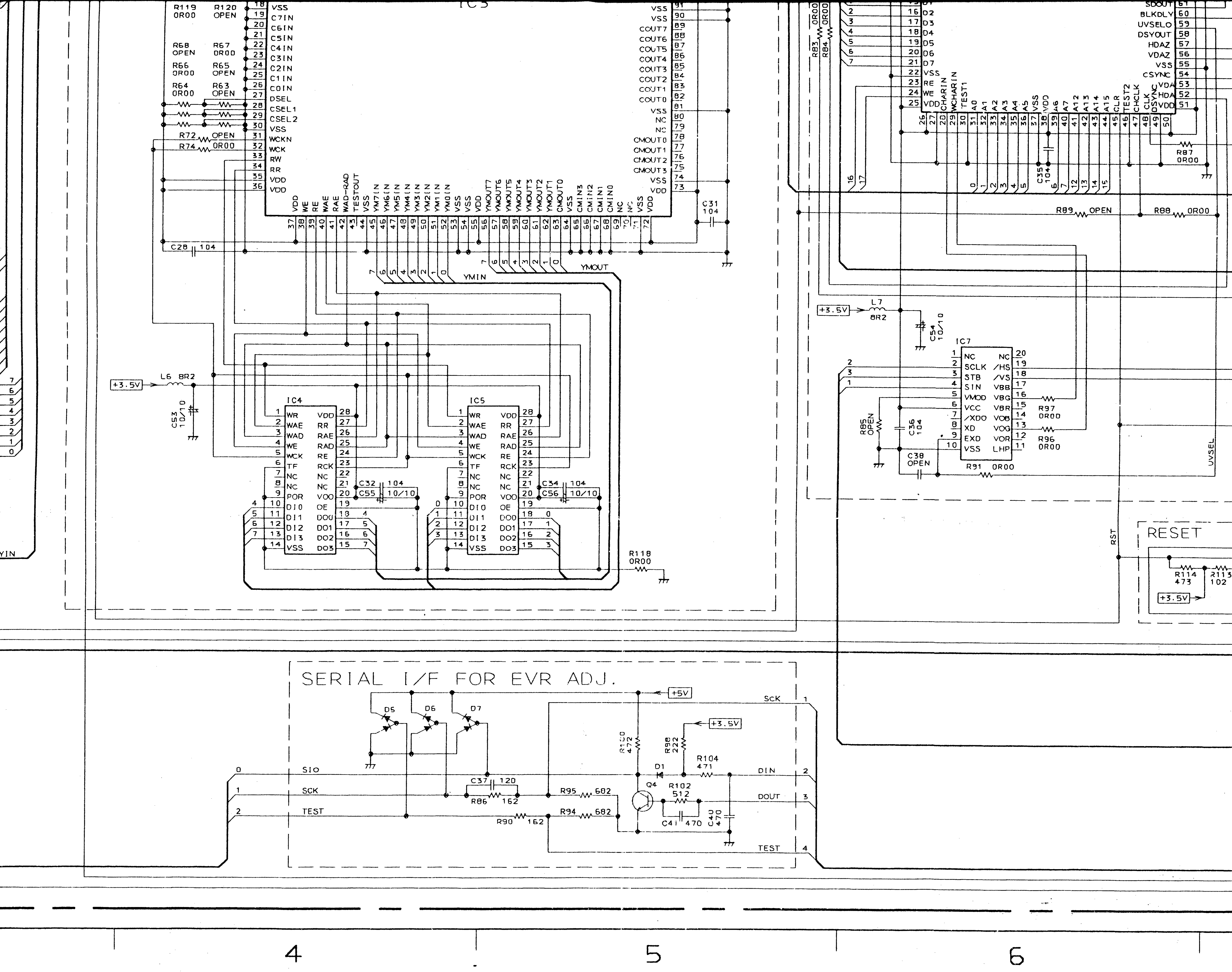
	B	C	E
Q1	(G) 0	(D) 3.3	(S) 0.7
2	(G) 0	(D) 3.3	(S) 0.7
3	1.0	3.4	0.3
4	0	4.9	0
5	0.4	0	1.0


C
B
A
1
2
3
IC2
IC12
Q3
Q5
CN2
To DRIVE BOARD . . . CN2
To DRIVE BOARD . . . CN3
FWHDO
GND
VRT
ADIN
VRB
5V
FVDO
3.5V
SIO
SCK
TEST
CP2
DATAIN
DATAOUT
CP2D
ALCFINE
SERBO
UP
DOWN
RIGHT
LEFT
SET
CSYNC
CBLK
GLSYNC
VD2
LP
LLDET
ALCSW
YOUT
+5V
+3.5V
CF3
X1
EVR
YIN
VDD
VSS
SUBO
CH1
CH2
V1
V2
V3
V4
EXTAD8
EXTAD7
EXTAD6
EXTAD5
EXTAD4
EXTAD3
EXTAD2
EXTAD1
EXTAD0
DVDD
DVSS
POWD
VRM
CXOUT
CXIN
VDO
COOUT
COIN
RWI
RWO
DS2
DS1
LPFSW
VCO
GLSYNC
LLDET
CPOB
CBLK
CSYNC
TEST2
TEST1
TEST0
CLKO
CLR
FCK2OUT
HCLRO
FBLKO
FVDO
FWHDO
FWHDI
FVDI
FBLKI
HCLRI
DCPI
CLKI
TESTS
TESTR
TESTL
TESTA
NRE
NWE
ADR7
ADR6
ADR5
ADR4
ADR3
ADR2
ADR1
ADR0
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
BEND
CHRA
AVDD
AVSS
IREF
VREF
COMP
YOUT
YIN7
YIN6
YIN5
YIN4
YIN3
YIN2
YIN1
YIN0
FBLKAI
FBLKAO
FWHDAO
FVDAO
YO0
YO1
YO2
YO3
YO4
YO5
YO6
YO7
UVSEL
CHRB
R16 102
R23 361
R22 105
R26 101
R28 105
R124 OPEN
R125 0R00
R46 0R00
R47 102
R43 0R00
R42 OPEN
R45 0R00
R49
R126
R500 102
L2 8R2
L5 8R2
L3 8R2
C49 10/10
C48 10/10
C500 47/10
C5 104
C12 104
C13 104
C16 104
C18 104
C58 220
C17 104
C20 104
C19 104
C24 104
R44 911
R56 0R00
R60 0R00
R61 OPEN
R59 0R00
R70 0R00
C22 OPEN
R53 512
C52 1/16
R51 103
R52 331
C50 10/10
C23 104
C25 104
R57 623
R59 273
C26 104
R121 222
R122 223
R75 222
C59 104
R123 103

DIGITAL BOARD

	IC1	IC4	IC5	IC7	IC8	IC9	IC11	IC12
Pin 1	0	3.3	3.3	0	3.4	0	0	0.3
2	0	3.3	3.3	3.4	3.4	4.9	3.4	0.3
3	0.7	0	0	0	3.4	4.9	3.4	0
4	0.7	0.7	0.7	3.4	3.4	0		3.4
5	0.7	1.7	1.7	3.3	3.4	2.8		4.8
6	0	0	0	3.4	0	0.9		
7	0	0	0	1.2	0	1.5		
8	0	0	0	1.8	0	0.8		
9	0	0	0	1.7		3.1		
10	0	1.5	1.5	0		4.9		
11	0	2.4	1.7	0		4.9		
12	0	0.1	1.4	0		2.6		
13	0	0	1.6	0		0		
14	0	0	0	0		4.8		
15	0	0	1.9	0		0		
16	3.3	0	1.6	0		3.4		
17		2.3	1.9	0		3.4		
18		1.3	1.7	3.3		2.5		
19		0	0	2.9		4.8		
20		3.4	3.4	0.0		0		
21		0	0					
22		0	0					
23		1.7	1.7					
24		0.7	0.7					
25		0	0					
26		3.3	3.3					
27		3.3	3.3					
28		3.4	3.4					

	B	C	E
Q1	(G) 0	(D) 3.3	(S) 0.7
2	(G) 0	(D) 3.3	(S) 0.7
3	1.0	3.4	0.3
4	0	4.9	0
5	0.4	0	1.0


IC3
IC4
IC5
IC7
YMIN
YMOUT
+3.5V
L6 8R2
L7 8R2
C28 104
C31 104
C53 10/10
C54 10/10
C32 104
C55 10/10
C34 104
C56 10/10
C35 104
C36 104
C38 OPEN
R118 0R00
R87 0R00
R88 0R00
R89 OPEN
R91 0R00
R96 0R00
R97 0R00
R85 OPEN
R72 OPEN
R74 0R00
R119 0R00
R120 OPEN
R68 OPEN
R67 0R00
R66 0R00
R65 OPEN
R64 0R00
R63 OPEN
UVSEL
RST
RESET
R114 473
R113 102
SERIAL I/F FOR EVR ADJ.
D5
D6
D7
SIO
SCK
TEST
DIN
DOUT
+5V
R100 472
R98 222
R104 471
R102 512
R95 682
R94 682
R86 162
R90 162
C37 120
C41 470
C40 470
D1
Q4
4
5
6

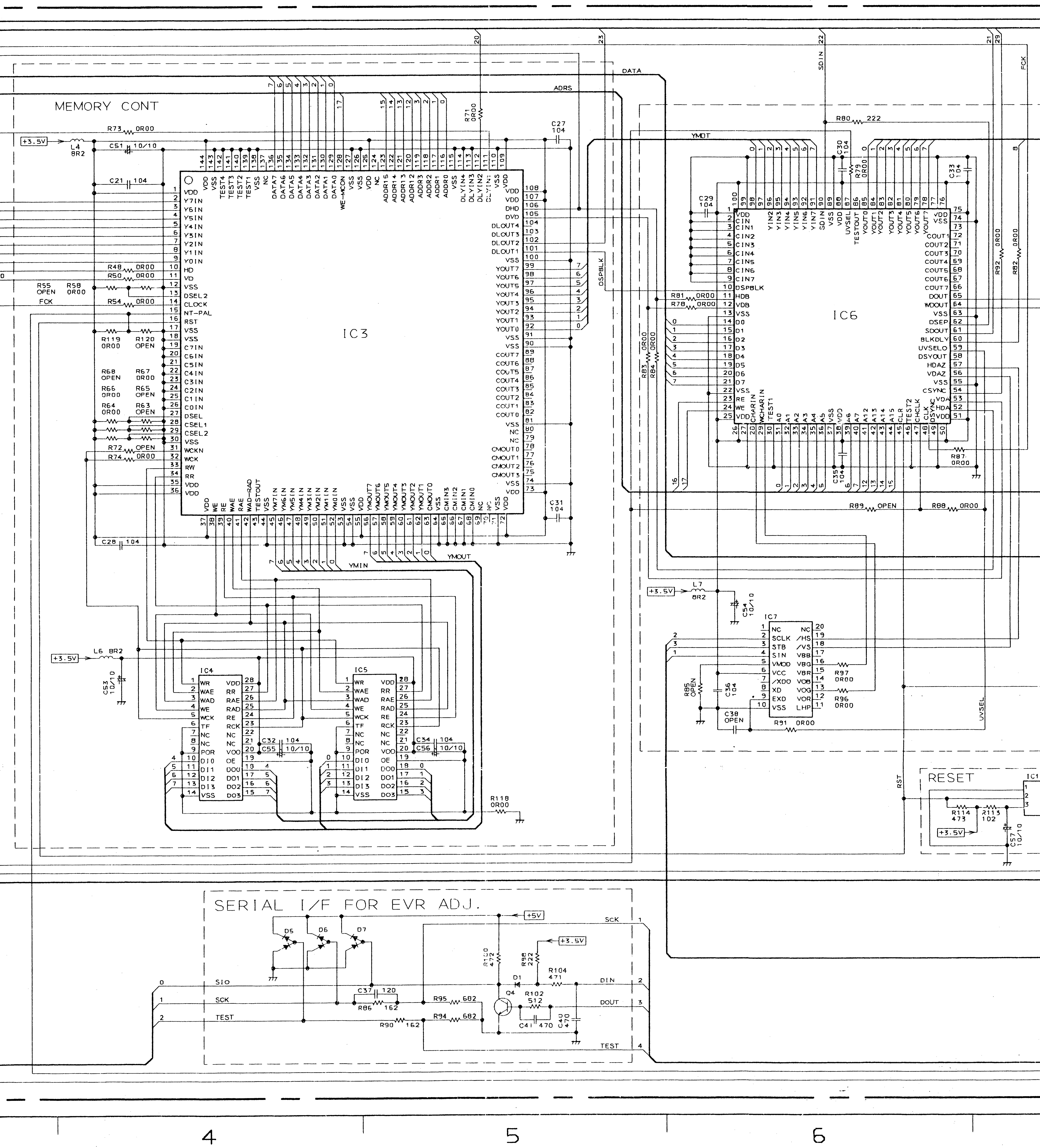
C	E
(D) 3.3	(S) 0.7
(D) 3.3	(S) 0.7
3.4	0.3
4.9	0
0	1.0

〈Index〉

DIGITAL BOARD

IC1	D2
IC2	B2
IC3	C4
IC4	B4
IC5	B4
IC6	C6
IC7	B6
IC8	C7
IC9	C8
IC10	B8
IC11	B7
IC12	A2
Q1	D1
Q2	D1
Q3	A3
Q4	A5
Q5	A2
D1	A5
D2	C2
D3	C2
D4	C2
D5	A4
D6	A4
D7	A4

SCHEMATIC DIAGRAM OF DIGITAL BOARD

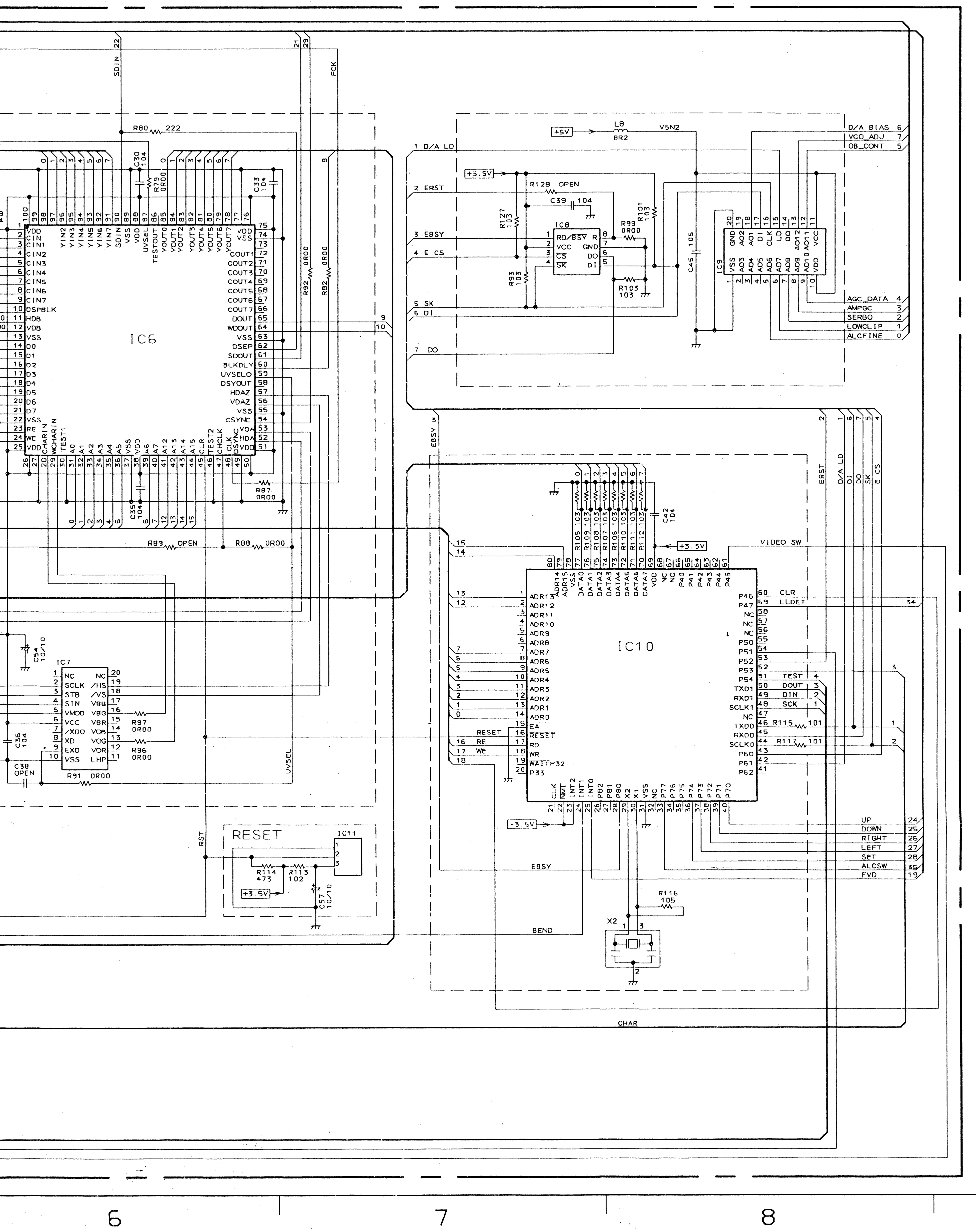

MEMORY CONT
IC3
IC4
IC5
IC6
IC7
SERIAL I/F FOR EVR ADJ.
RESET
DATA
ADRS
YMOT
YMIN
YMOUT
DSPBLK
SDIN
FCK
UVSEL
RST
+3.5V
+5V
SIO
SCK
TEST
DIN
DOUT
D5
D6
D7
D1
Q4
4
5
6

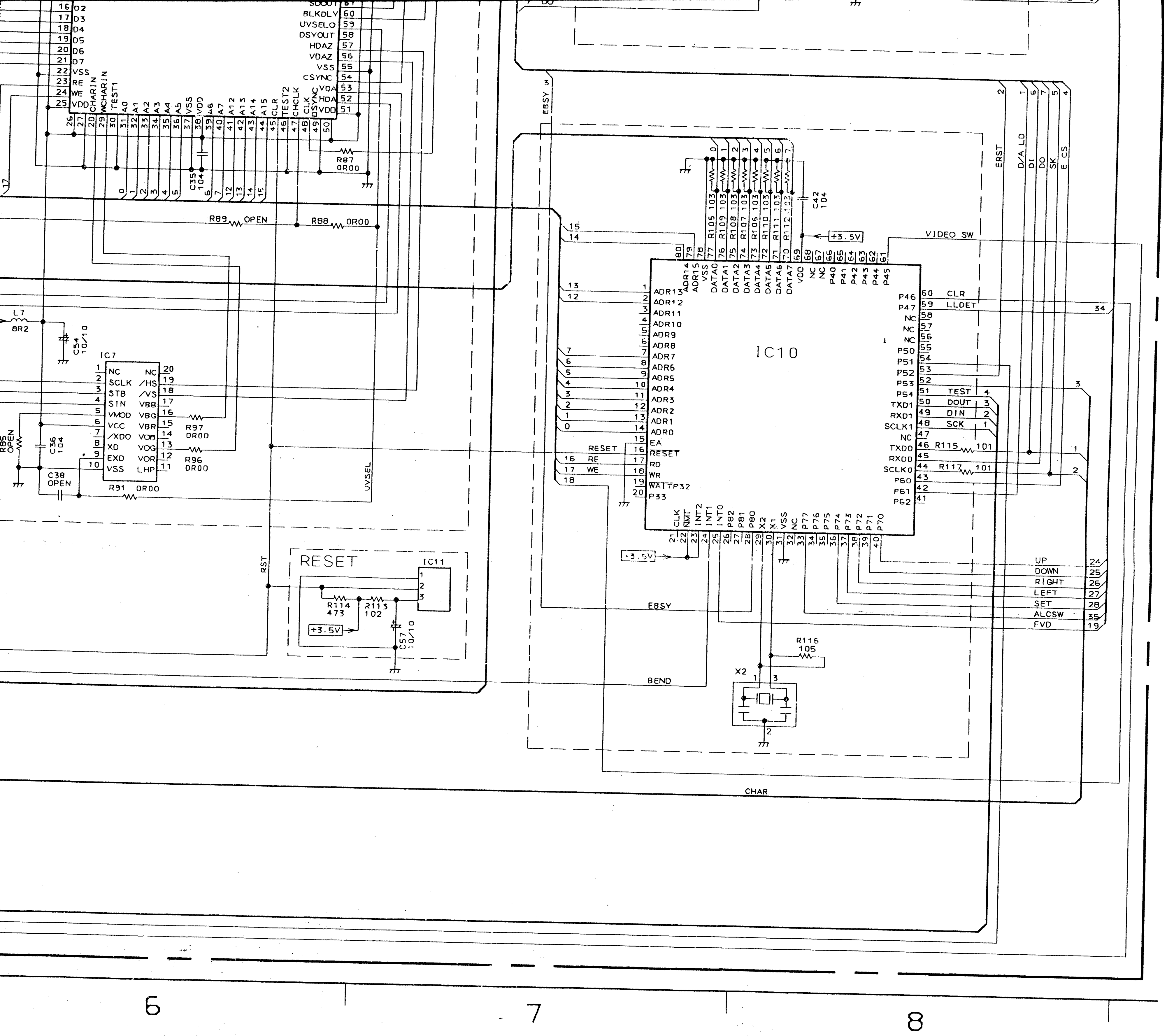
E
(S) 0.7
(S) 0.7
0.3
0
1.0

⟨Index⟩

DIGITAL BOARD

IC1	D2
IC2	B2
IC3	C4
IC4	B4
IC5	B4


IC6
IC7
IC8
IC9
IC10
IC11
RESET
SDIN
FCK
R80 222
C30 104
R79 0R00
C33 104
R92 0R00
R82 0R00
R87 0R00
C35 104
R89 OPEN
R88 0R00
C54 10/10
C36 104
C38 OPEN
R91 0R00
R97 0R00
R96 0R00
UVSEL
RST
R114 473
R113 102
C57 10/10
+3.5V
+5V
L8 8R2
V5N2
1 D/A LD
2 ERST
3 EBSY
4 E CS
5 SK
6 DI
7 DO
R128 OPEN
C39 104
R127 103
R93 103
R99 0R00
R101 103
R103 103
C45 105
D/A BIAS 6
VCO_ADJ 7
OB_CONT 5
AGC_DATA 4
AMPGC 3
SERBO 2
LOWCLIP 1
ALCFINE 0
EBSY
ERST
D/A LD
DI
DO
SK
E CS
R105 103
R109 103
R108 103
R107 103
R106 103
R110 103
R111 103
R112 103
C42 104
VIDEO SW
CLR
LLDET
TEST
DOUT
DIN
SCK
R115 101
R117 101
RESET
RE
WE
UP
DOWN
RIGHT
LEFT
SET
ALCSW
FVD
R116 105
X2
BEND
CHAR
6
7
8


IC10
IC7
IC11
RESET
X2
R105 103
R109 103
R108 103
R107 103
R106 103
R110 103
R111 103
R112 103
C42 104
+3.5V
VIDEO SW
ERST
D/A LD
DI
DO
SK
E CS
EBSY
CLR
LLDET
TEST
DOUT
DIN
SCK
R115 101
R117 101
UP
DOWN
RIGHT
LEFT
SET
ALCSW
FVD
BEND
CHAR
R116 105
R114 473
R113 102
C57 10/10
RST
UVSEL
R89 OPEN
R88 0R00
R87 0R00
R97 0R00
R96 0R00
R91 0R00
C38 OPEN
C36 104
C35 104
C54 10/10
L7 8R2
6
7
8

Note: The value indicated in the schematic diagram should be read as follows:

□ □ □

Multiplier (0 - 5)

2nd. Significant Digit (0 - 9)

1st. Siginificant Digit (1 - 9)

<Example>

For Resistor:

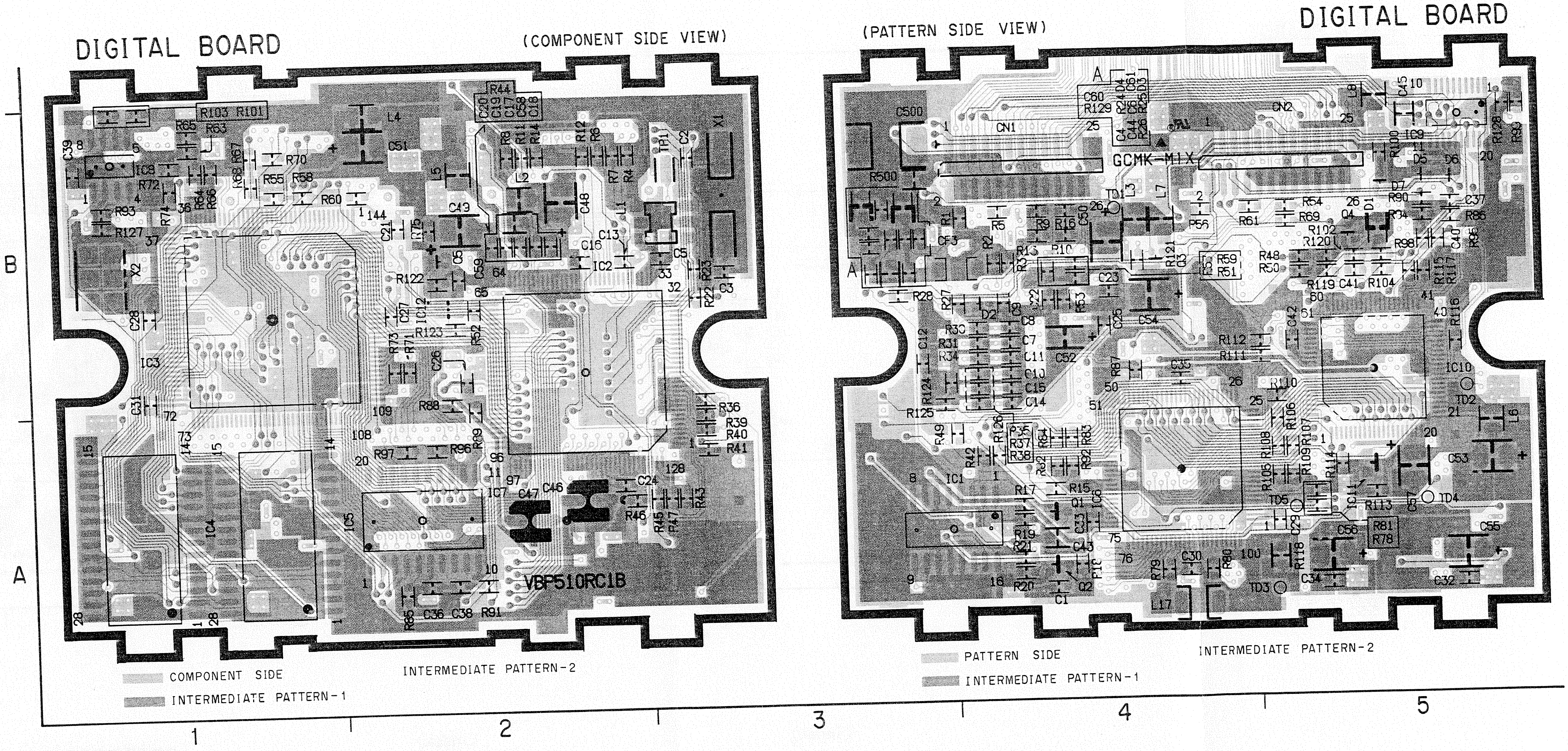
330 → 33 x 10^0 = 33 Ω
561 → 56 x 10^1 = 560 Ω
123 → 12 x 10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:

820 → 82 x 10^0 = 82 pF
102 → 10 x 10^2 = 1000 pF = 0.001 μF
104 → 10 x 10^4 = 100000 pF = 0.1 μF

The suffix attached to capacitance indicates a type of capacitor.

CONDUCTOR VIEW OF DIGITAL BOARD

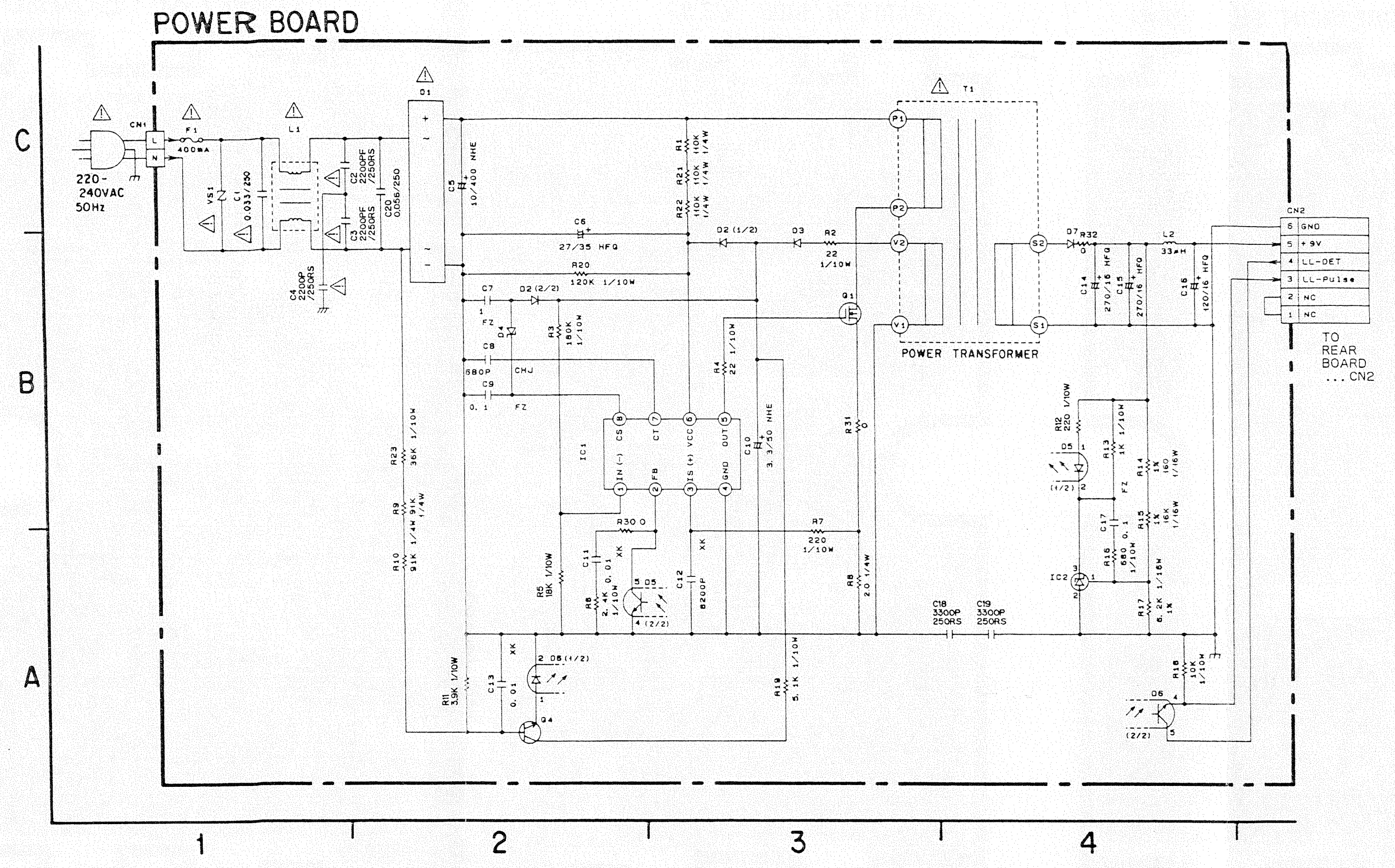

DIGITAL BOARD
(COMPONENT SIDE VIEW)
(PATTERN SIDE VIEW)
DIGITAL BOARD
B
A
1
2
3
4
5
VBP510RC1B
GCMK-M1X
IC1
IC2
IC3
IC4
IC5
IC7
IC8
IC9
IC10
IC12
CN1
CN2
X1
X2
COMPONENT SIDE
INTERMEDIATE PATTERN-1
INTERMEDIATE PATTERN-2
PATTERN SIDE
INTERMEDIATE PATTERN-1
INTERMEDIATE PATTERN-2

〈Index〉

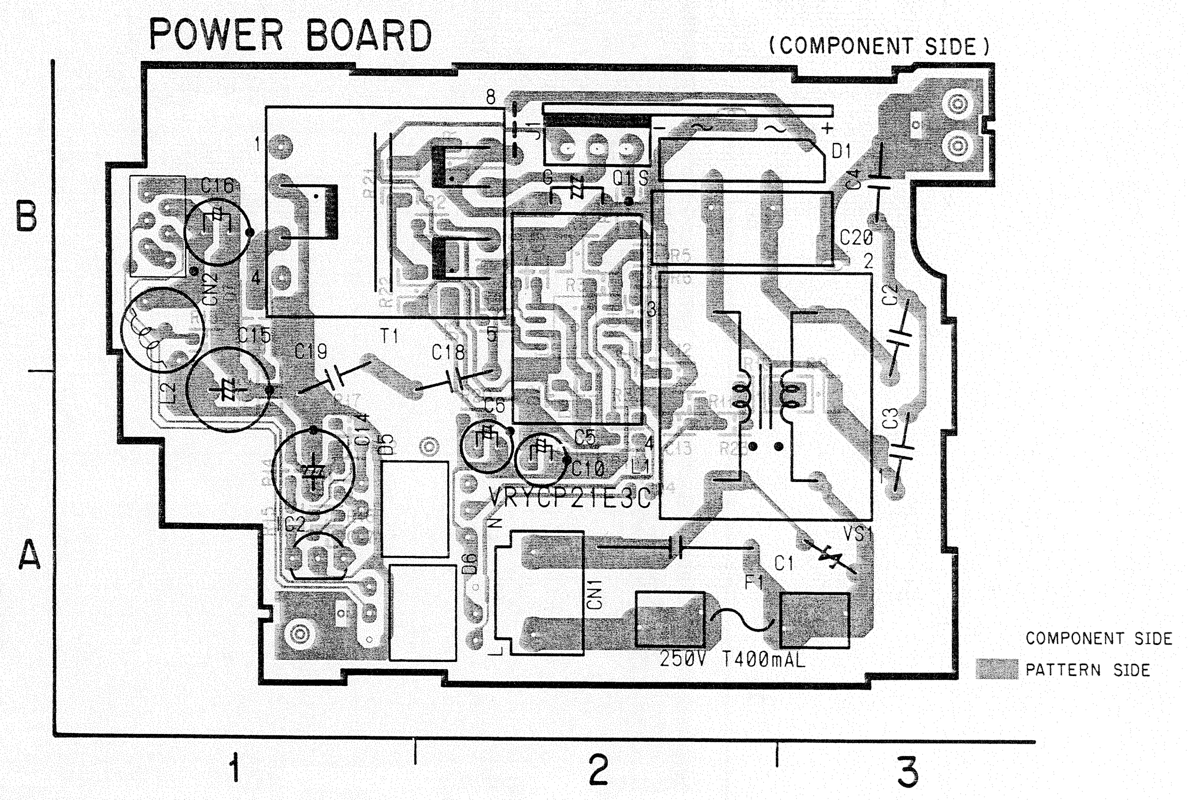
DIGITAL BOARD

IC1	A4	Q1	A4
IC2	B2	Q2	A4
IC3	B1	Q3	B4
IC4	A1	Q4	B5
IC5	A1	Q5	B2
IC6	A4	D1	B5
IC7	A2	D2	B4
IC8	B1	D3	B3
IC9	B5	D4	B3
IC10	B5	D5	B5
IC11	A5	D6	B5
IC12	B2	D7	B5

SCHEMATIC DIAGRAM OF POWER BOARD (WV-BP510)


POWER BOARD
C
B
A
1
2
3
4
CN1
F1
400mA
L1
220-240VAC 50Hz
VS1
C1 0.033/250
C2 2200PF /250RS
C3 2200PF /250RS
C20 0.056/250
C4 2200P /250RS
D1
C5 10/400 HHE
C6 27/35 HFQ
R20 120K 1/10W
R1
R21
R22
D2 (1/2)
D3
R2 22 1/10W
Q1
C7
D2 (2/2)
D4
C8 560P
C9 0.1
R3 180K 1/10W
R4 22 1/10W
IC1
C10 3.3/50 HHE
R31 0
R30 0
R23
R9
R10
R5
R6
C11
C12 8200P
D5 (2/2)
R7 220 1/10W
R8 20 1/4W
C18 3300P 250RS
C19 3300P 250RS
R11
C13 0.01
D5 (1/2)
Q4
R19 5.1K 1/10W
T1
POWER TRANSFORMER
P1
P2
V2
V1
S2
S1
D7
R32 0
C14 270/16 HFQ
C15 270/16 HFQ
L2 33µH
C16 120/16 HFQ
R12 220 1/10W
D5 (1/2)
R13 1K 1/10W
R14 1K 160 1/16W
R15
R16
C17
IC2
R17
R18
D6 (2/2)
CN2
6 GND
5 +9V
4 LL-DET
3 LL-Pulse
2 NC
1 NC
TO REAR BOARD ...CN2

CONDUCTOR VIEW OF POWER BOARD (WV-BP510)


POWER BOARD
(COMPONENT SIDE)
B
A
1
2
3
D1
Q1
C16
CN2
C15
C19
T1
C18
C20
C2
C3
C4
L2
C5
C10
D5
D6
IC1
CN1
F1
C1
VS1
250V T400mAL
VRYCP2TE3C
COMPONENT SIDE
PATTERN SIDE

IMPORTANT SAFETY NOTICE

COMPONENTS IDENTIFIED BY ⚠ MARK HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY MANUFACTURE'S SPECIFIED PARTS.

〈Index〉

POWER BOARD

IC1	B2
IC2	A4
Q1	B3
Q2	A2, B4
Q3	A2, A4
Q4	A2
D1	C2
D2	B2, B3
D3	B3
D4	B2
D8	C4

〈Index〉

POWER BOARD

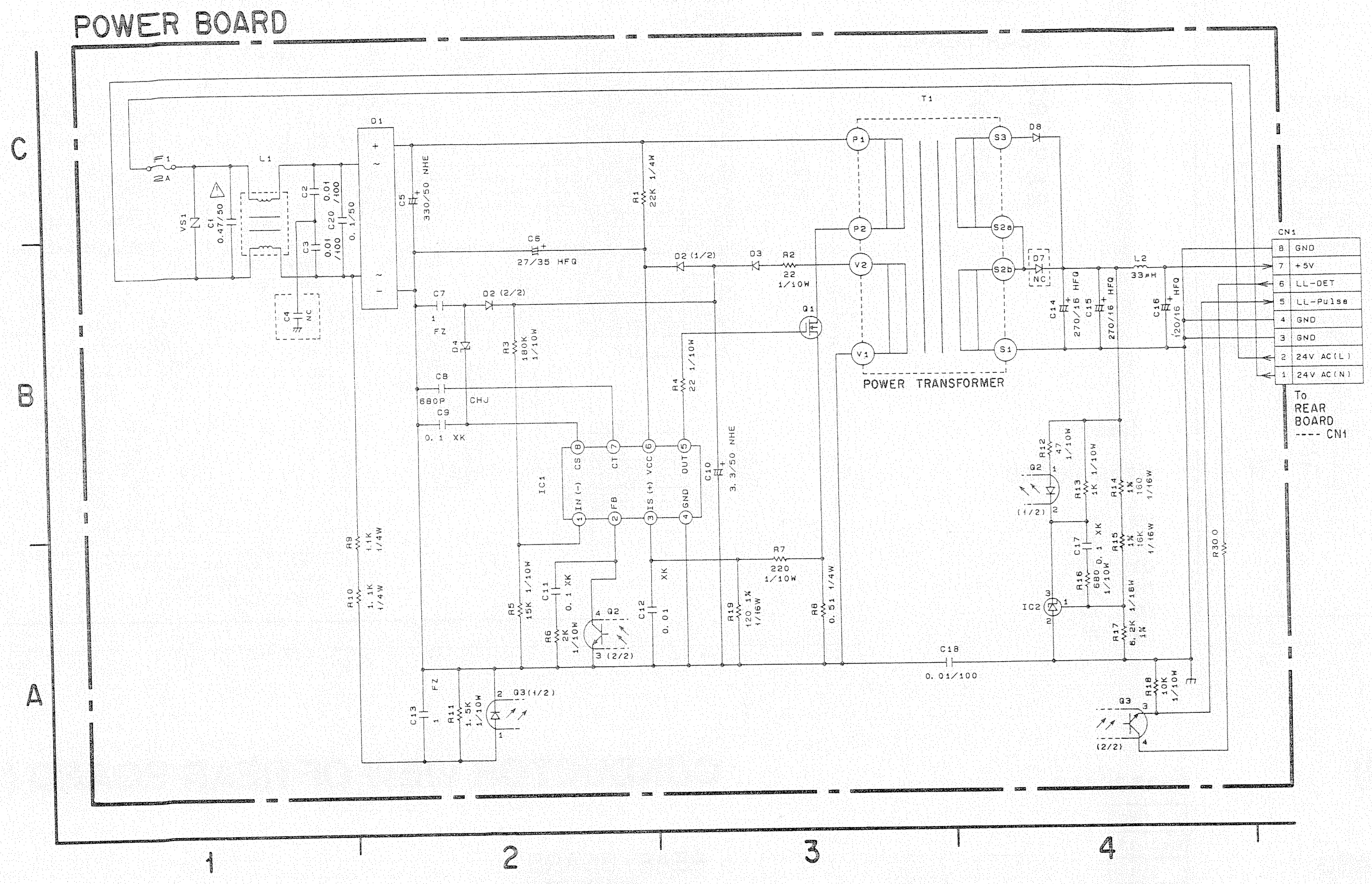
IC1	B2
IC2	A1
Q1	B2
Q2	A2
Q3	A1
Q4	A2
D1	B2
D2	A2
D3	B2
D4	A2
D8	B1

POWER BOARD

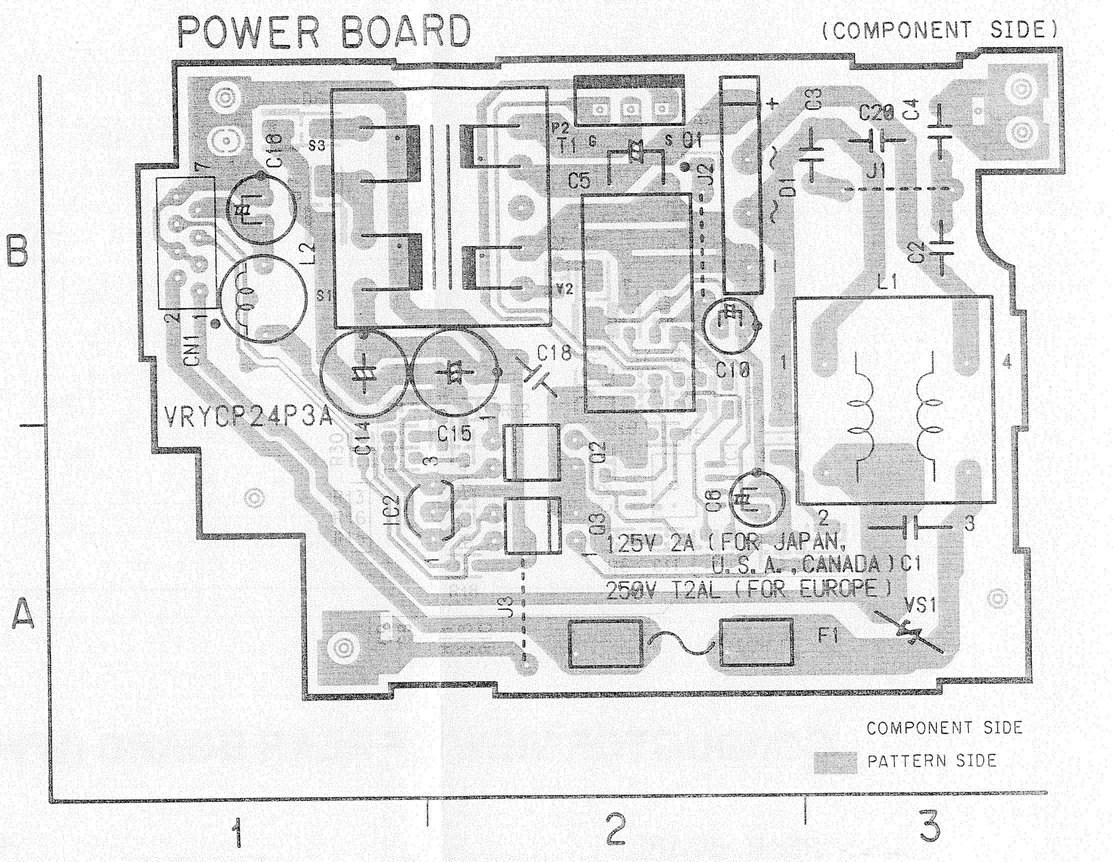
	IC1	IC2
Pin 1	-12.1	2.5
2	-12.2	0
3	-13.4	8.0
4	-13.4	
5	-10.7	
6	2.4	
7	-11.6	
8	-10.3	

	B	C	E
Q1	(G) -10.4	(D) 107.9	(S) -13.5
4	-12.6	-2.6	-12.9

SCHEMATIC DIAGRAM OF POWER BOARD (WV-BP514)


POWER BOARD
C
B
A
1
2
3
4
F1
VS1
L1
C1 0.47/50
C2
C3
C20 0.01/400
C4 NC
D1
C5 330/50 HHE
R1 22K 1/4W
C6 27/35 HFQ
C7
D2 (2/2)
D4
R3 180K 1/10W
C8 680P CHJ
C9 0.1 XK
D2 (1/2)
D3
R2 22 1/10W
Q1
R4 22 1/10W
IC1
1 IN(-)
2 FB
3 IS(+)
4 GND
5 OUT
6 VCC
7 CT
8 CS
C10 3.3/50 HHE
R5 15K 1/10W
C11 0.1 XK
R6 2K 1/10W
Q2
3 (2/2)
C12 0.01
R7 220 1/10W
R8 0.51 1/4W
R9 1.1K 1/4W
R10 1.1K 1/4W
R19 120 1K 1/16W
C13
R11 1.5K 1/10W
Q3 (1/2)
C18 0.01/100
T1
P1
P2
V2
V1
S3
S2a
S2b
S1
POWER TRANSFORMER
D8
D7 NC
C14 270/16 HFQ
C15 270/16 HFQ
L2 33μH
C16 120/16 HFQ
R12 47 1/10W
Q2 (1/2)
R13 1K 1/10W
R14 1% 160 1/16W
C17 0.1 XK
R15 1% 16K 1/16W
R16 680 1/10W
IC2
R17 8.2K 1/16W
R18 10K 1/16W
Q3 (2/2)
R30 0
CN1
8 GND
7 +5V
6 LL-DET
5 LL-Pulse
4 GND
3 GND
2 24V AC(L)
1 24V AC(N)
To REAR BOARD ---- CN1

CONDUCTOR VIEW OF POWER BOARD (WV-BP514)


POWER BOARD
(COMPONENT SIDE)
B
A
1
2
3
C10
S3
P2
T1
G
S
Q1
J2
C3
C20
C4
C5
D1
J1
C2
L2
S1
V2
L1
CN1
C18
C19
VRYCP24P3A
C14
C15
Q2
IC2
Q3
C6
J3
125V 2A (FOR JAPAN, U.S.A., CANADA) C1
250V T2AL (FOR EUROPE)
VS1
F1
COMPONENT SIDE
PATTERN SIDE

〈Index〉

POWER BOARD

IC1	B2
IC2	A4
Q1	B3
Q2	A2, B4
Q3	A2, A4
D1	C2
D2	B2, B3
D3	B3
D4	B2
D8	C4

〈Index〉

POWER BOARD

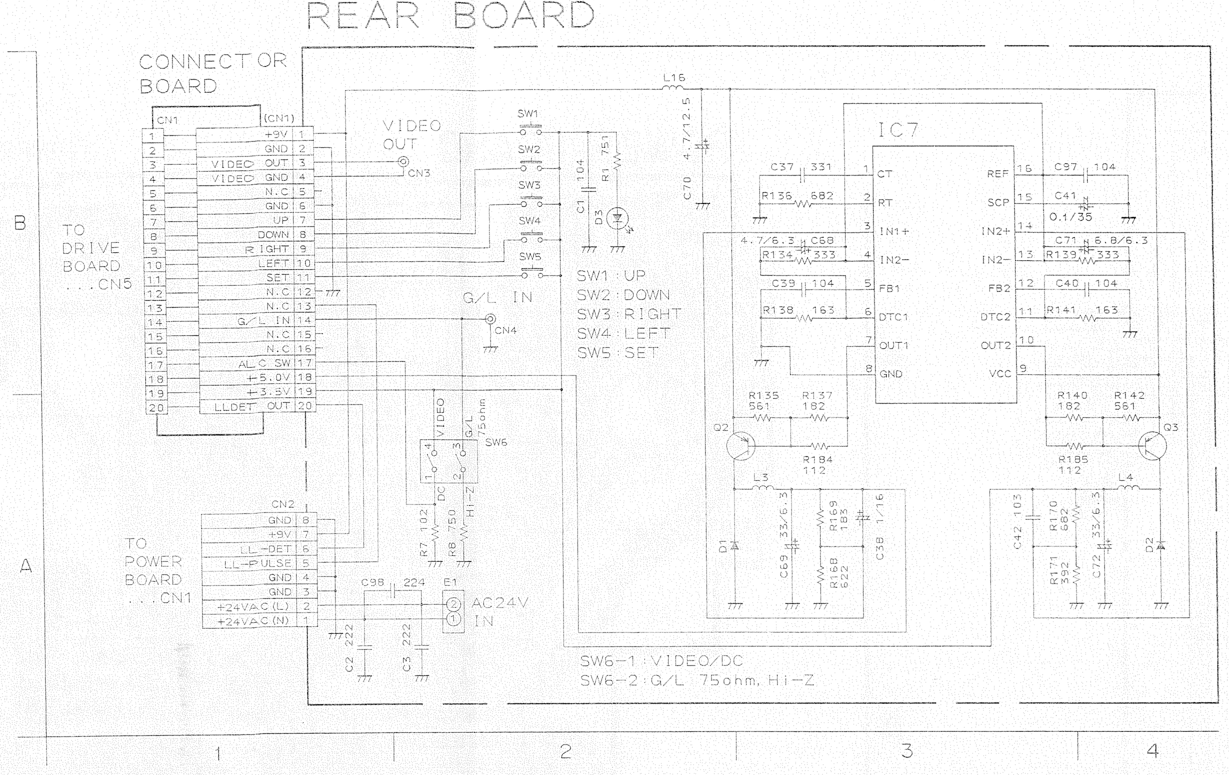
IC1	A2
IC2	A1
Q1	B2
Q2	A2
Q3	A2
D1	B2
D2	B2
D3	B2
D4	B2
D8	B1

POWER BOARD

	IC1	IC2
Pin 1	-12.1	2.5
2	-12.2	0
3	-13.4	8.0
4	-13.4	
5	-10.7	
6	2.4	
7	-11.6	
8	-10.3	

	B	C	E
Q1	(G) -10.4	(D) 107.9	(S) -13.5
4	-12.6	-2.6	-12.9

SCHEMATIC DIAGRAM OF REAR BOARD (WV-BP510)

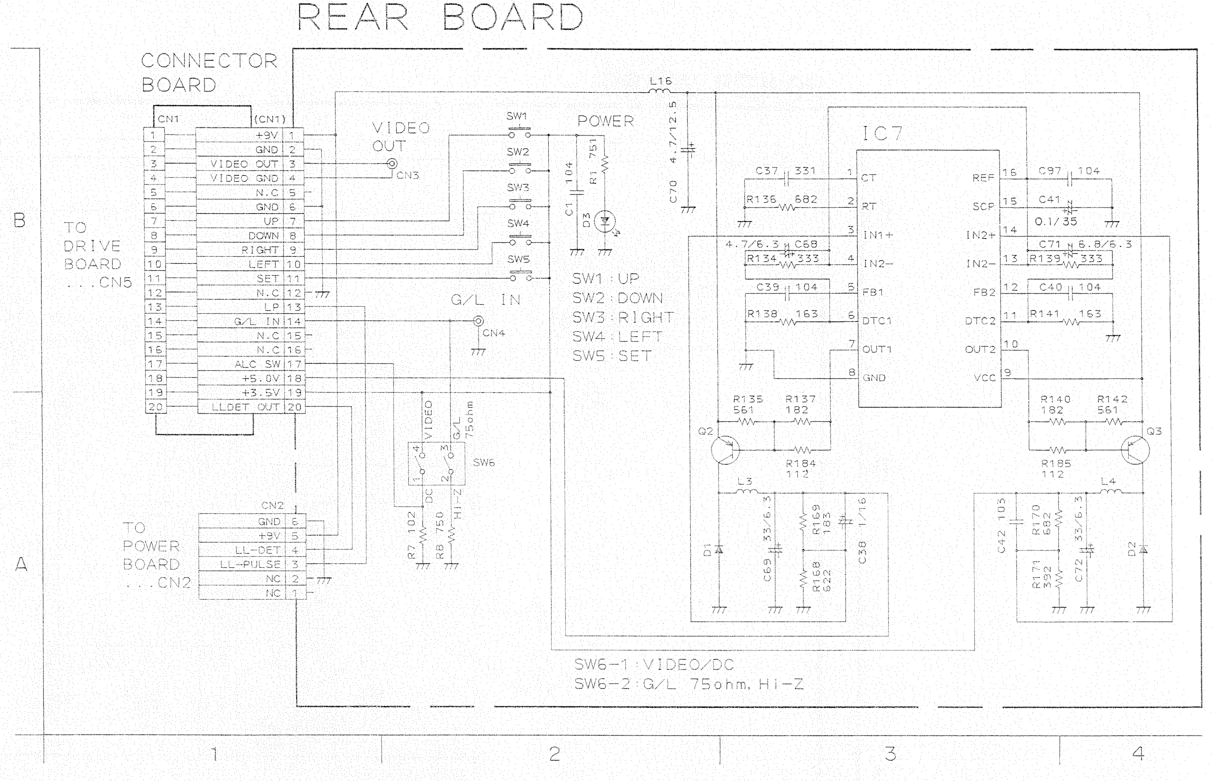

REAR BOARD
CONNECTOR BOARD
TO DRIVE BOARD ...CN5
TO POWER BOARD ...CN1
VIDEO OUT
G/L IN
AC24V IN
IC7
SW1 : UP
SW2 : DOWN
SW3 : RIGHT
SW4 : LEFT
SW5 : SET
SW6-1 : VIDEO/DC
SW6-2 : G/L 75ohm, Hi-Z
B
A
1
2
3
4

〈Index〉

REAR BOARD

IC7	B3
Q2	A2
Q3	A4
D1	A2
D2	A4
D3	B2

SCHEMATIC DIAGRAM OF REAR BOARD (WV-BP514)

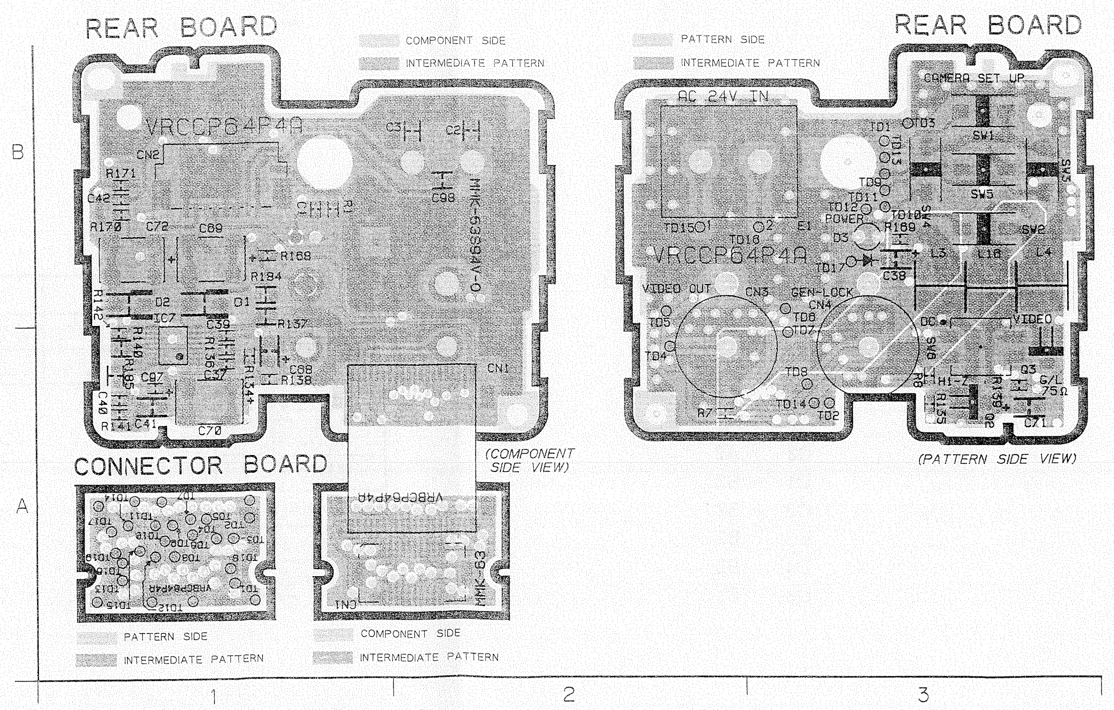

REAR BOARD
CONNECTOR BOARD
TO DRIVE BOARD ...CN5
TO POWER BOARD ...CN2
VIDEO OUT
POWER
G/L IN
IC7
SW1 : UP
SW2 : DOWN
SW3 : RIGHT
SW4 : LEFT
SW5 : SET
SW6-1 : VIDEO/DC
SW6-2 : G/L 75ohm, Hi-Z
B
A
1
2
3
4

〈Index〉

REAR BOARD

IC7	B3
Q2	A2
Q3	A4
D1	A2
D2	A4
D3	B2

CONDUCTOR VIEW OF REAR BOARD (WV-BP510)


REAR BOARD
REAR BOARD
COMPONENT SIDE
INTERMEDIATE PATTERN
PATTERN SIDE
INTERMEDIATE PATTERN
VRCCP64P4A
AC 24V IN
CAMERA SET UP
VIDEO OUT
GEN-LOCK
POWER
(COMPONENT SIDE VIEW)
(PATTERN SIDE VIEW)
CONNECTOR BOARD
PATTERN SIDE
INTERMEDIATE PATTERN
COMPONENT SIDE
INTERMEDIATE PATTERN
B
A
1
2
3

REAR BOARD

	IC7
Pin 1	1.6
2	1.2
3	1.3
4	1.3
5	1.7
6	0.4
7	6.5
8	0
9	8.9
10	7.4
11	0.4
12	1.8
13	1.3
14	1.3
15	0
16	1.3

〈Index〉

REAR BOARD

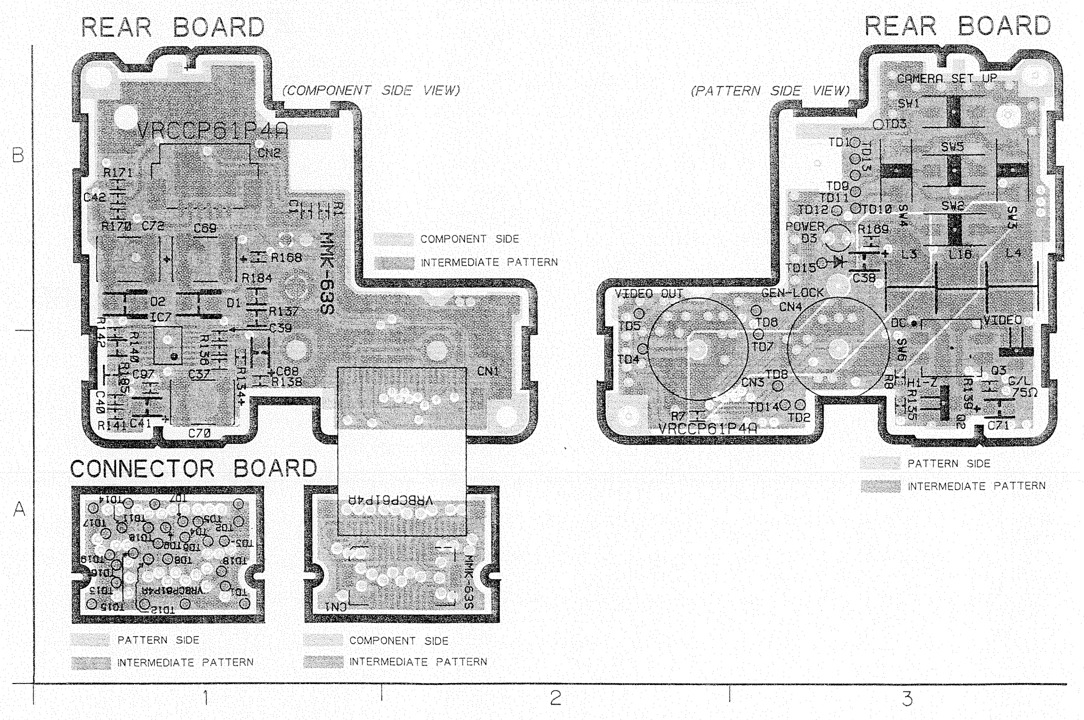
IC7	B1
Q2	A3
Q3	A3
D1	B1
D2	B1
D3	B3

CONDUCTOR VIEW OF REAR BOARD (WV-BP514)

〈Index〉

REAR BOARD

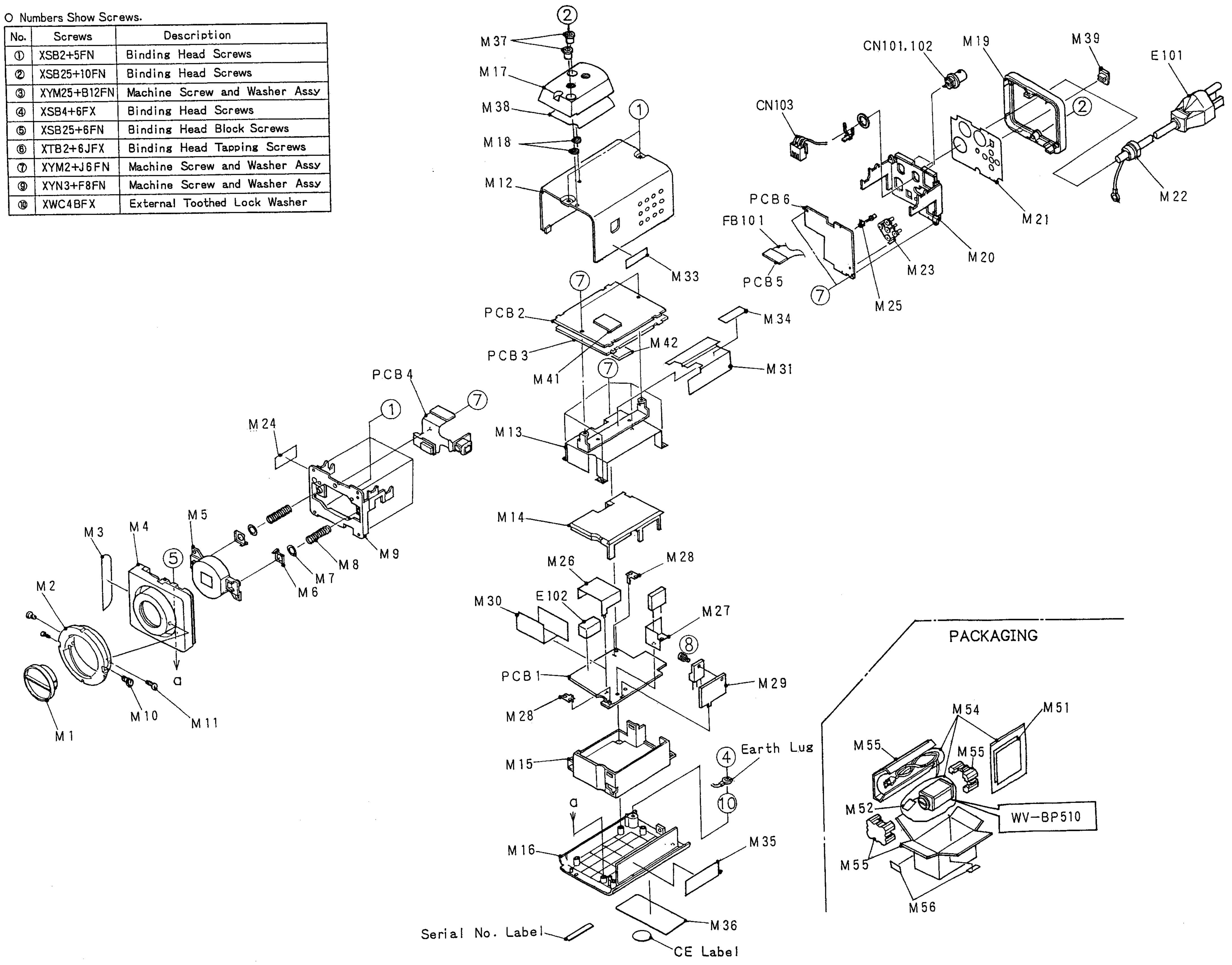
IC7	B1
Q2	A3
Q3	A3
D1	B1
D2	B1
D3	B3


REAR BOARD
REAR BOARD
(COMPONENT SIDE VIEW)
(PATTERN SIDE VIEW)
VRCCP61P4A
CAMERA SET UP
VIDEO OUT
GEN-LOCK
POWER
COMPONENT SIDE
INTERMEDIATE PATTERN
CONNECTOR BOARD
PATTERN SIDE
INTERMEDIATE PATTERN
COMPONENT SIDE
INTERMEDIATE PATTERN
B
A
1
2
3

EXPLODED VIEW OF WV-BP510

○ Numbers Show Screws.

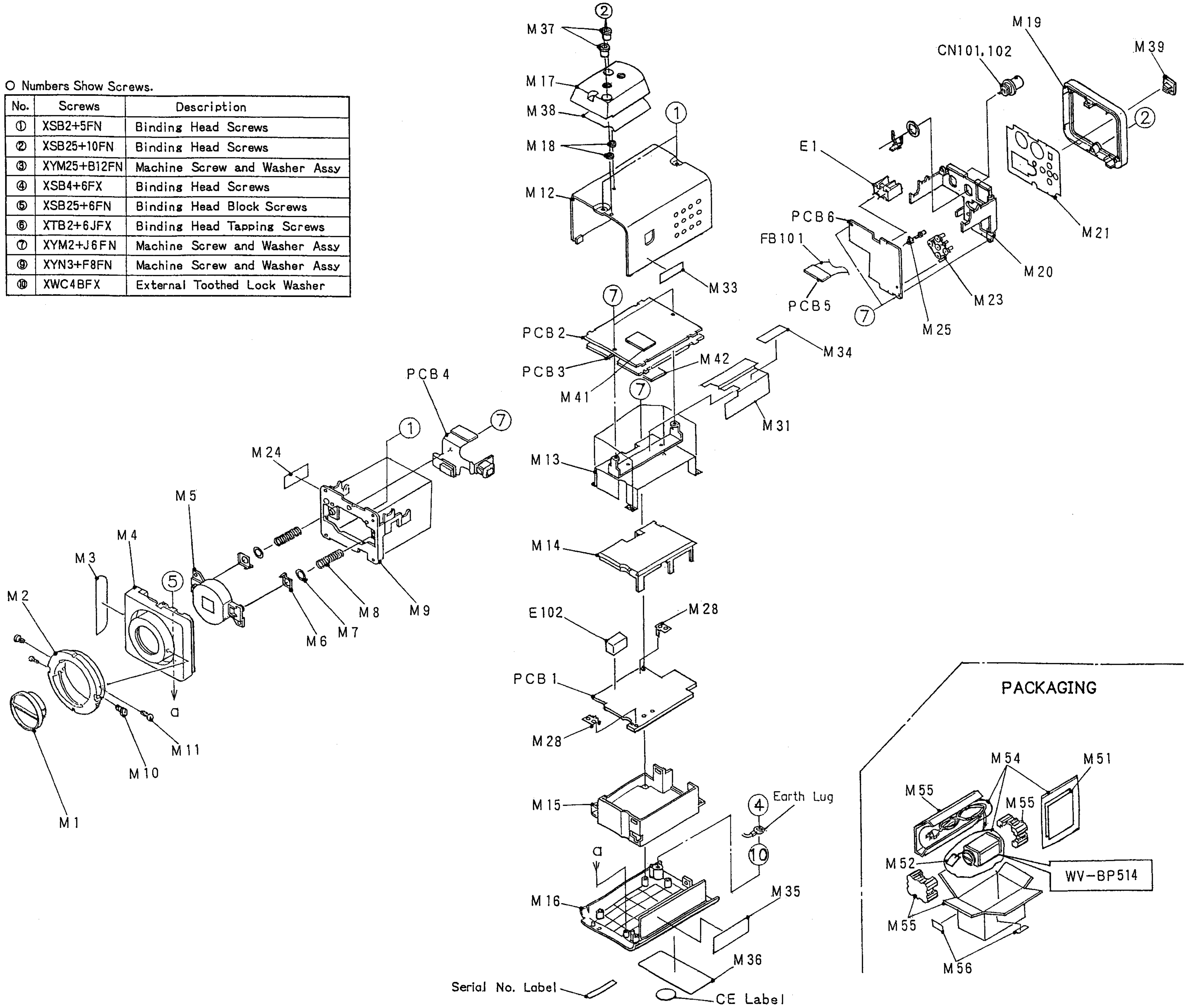
No.	Screws	Description
①	XSB2+5FN	Binding Head Screws
②	XSB25+10FN	Binding Head Screws
③	XYM25+B12FN	Machine Screw and Washer Assy
④	XSB4+6FX	Binding Head Screws
⑤	XSB25+6FN	Binding Head Block Screws
⑥	XTB2+6JFX	Binding Head Tapping Screws
⑦	XYM2+J6FN	Machine Screw and Washer Assy
⑨	XYN3+F8FN	Machine Screw and Washer Assy
⑩	XWC4BFX	External Toothed Lock Washer


②
M37
M17
M38
①
M18
M12
CN101,102
M19
M39
E101
CN103
②
M22
M21
PCB6
FB101
M20
M23
M33
PCB5
⑦
M25
⑦
PCB2
M34
M42
PCB3
M31
M41
⑦
PCB4
⑦
①
M24
M13
M14
M3
M4
M5
⑤
M9
M8
M7
M6
M2
a
M1
M10
M11
M26
M28
M30
E102
M27
⑧
PCB1
M29
M28
M15
④
Earth Lug
⑩
a
M16
M35
M36
Serial No. Label
CE Label
PACKAGING
M54
M51
M55
M55
M52
WV-BP510
M55
M56

EXPLODED VIEW OF WV-BP514

○ Numbers Show Screws.

No.	Screws	Description
①	XSB2+5FN	Binding Head Screws
②	XSB25+10FN	Binding Head Screws
③	XYM25+B12FN	Machine Screw and Washer Assy
④	XSB4+6FX	Binding Head Screws
⑤	XSB25+6FN	Binding Head Block Screws
⑥	XTB2+6JFX	Binding Head Tapping Screws
⑦	XYM2+J6FN	Machine Screw and Washer Assy
⑨	XYN3+F8FN	Machine Screw and Washer Assy
⑩	XWC4BFX	External Toothed Lock Washer


M37
②
M17
M38
①
M18
M12
M33
⑦
PCB2
PCB3
M42
M41
⑦
M13
M31
M34
M14
E102
M28
PCB1
M28
M15
④ Earth Lug
⑩
a
M16
M35
M36
Serial No. Label
CE Label
M19
M39
CN101,102
②
E1
PCB6
FB101
PCB5
⑦
M25
M23
M20
M21
PCB4
⑦
①
M24
M5
M4
M3
M2
⑤
M9
M8
M7
M6
a
M11
M10
M1
PACKAGING
M54
M51
M55
M55
M52
WV-BP514
M55
M56

REPLACEMENT PARTS LIST

Important Notice

1. Components identified by " ⚠ " mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. RTL : Retention Time Limited,

CCTV CAMERA WV-BP510

MISCELLANEOUS

REF.NO.	PART NO.	DESCRIPTION
FB101	YWCP210J1B	Flexible Board
F1 ⚠	XBA2C20ET0A	Current Fuse 2A 250V
CN101,102	YWP2270	BNC Connector
CN103	YWVAR2	2-pin Connector
E101 ⚠	YWKP551SXA	Power Cable Assy for WV-BP510/A
	YWKP610SXB	Power Cable Assy for WV-BP510/B
	YWKP4819DSXG	Power Cable Assy for WV-BP510/G
E102	YW840522	Insulator Fuse Cap
M1	YWBC-2B	Body Cap
M2	YWV3FA0178A3	FB Control Ring
M3	YWV5WG1584A4	Front Side Panel
M4	YWV5BA0128A2	Front Escutcheon
M5	YWVBP510EA2A	Head Optical Assy
M6	YWV4JA0479A4	Spring Plate
M7	YWV2CA0386A4	Hold Plate
M8	YWV4JA0262A4	Coil Spring
M9	YWV2SA2640A3	Mounting Angle for Front
M10	YWV1EB0127A4	Special Screw
M11	YWV1EA0128A4	Special Screw
M12	YWV5EA1363A2	Upper Cover
M13	YWV2HA1168A3	Shield Angle
M14	YWV6EA0196A3	Upper Case for Power Board
M15	YWV5KA1357A3	Bottom Case for Power Board
M16	YWV2KA0874A2	Bottom Chassis
M17	YWV2TB0333A3	Mounting Bracket
M18	YWV1KA0128A4	Washer
M19	YWV5BA0121A3	Rear Escutcheon
M20	YWV2SA2641A3	Mounting Angle for Rear Board
M21	YWV5WA1678A4	Rear Panel
M22	YWSR6W1	Cord Clamp
M23	YWV5RA0438A3	Switch Knob
M24	YWV7MA0443A4	Fuse Sub Safety Label
M31	YWV7DA0401A4	Heat Sink
M33	YWV7SA3070A4	Model Label
M34	YWV7MA0413A4	Fuse Change Label
M35	YWV7MA0412A4	Fuse Safety Label
M36	YWV7QA4150A4	Main Label for WV-BP510/A
	YWV7QA4148A4	Main Label for WV-BP510/B
	YWV7QA4149A4	Main Label for WV-BP510/G
M37	YFV2NA0084A4	Spacer
M38	YWV2PA0615A4	Insulator Sheet
M39	YWV5GA0171A4	Blank Cap
M41	YWTC200T2X4A	Cool Cheet A
M42	YWTC300T2X2A	Cool Cheet B

POWER BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB1 (RTL)	YWVKYBP11E3B	Printed Circuit Board Assy	
IC1	YWFA5304S	IC	
IC2	YWTA76431S	IC	
Q1	2SK154801M	FET	
Q4	2SC2412-QRS	Transistor	
D1 ⚠	S1VB60	Diode	
D2	YWDAN217	Diode	
D3	YWSC2012	Diode	
D4	YWDTZ5.1	Diode	
D5,6	YWPC111LY	Diode	
D7	YWSC80209R	Diode	
VS1 ⚠	ERZC07DK471U	ZNR	
R1	ERJ14YJ114	Carbon	110K ohms
R2	YF2116220JT	Carbon	22 ohms 1/10W
R3	YF2116184JT	Carbon	180K ohms 1/10W
R4	YF2116220JT	Carbon	22 ohms 1/10W
R5	YW2116183GT	Carbon	18K ohms 1/10W
R6	YW2116242JT	Carbon	2.4K ohms 1/10W
R7	ERJ6GEYJ221	Carbon	220 ohms 1/10W
R8	ERJ14YJ2R7	Carbon	2.7 ohms 1/4W
R9,10	ERJ14YJ913	Carbon	91K ohms 1/4W
R11	YF2116392JT	Carbon	3.9K ohms 1/10W
R12	ERJ6GEYJ221	Carbon	220 ohms 1/10W
R13	ERJ6GEYJ102	Carbon	1K ohms 1/10W
R14	YWR1220P161D	Metal	160 ohms
R15	YWR1220P163D	Metal	16K ohms
R16	YF2116681JT	Carbon	680 ohms 1/10W
R17	YWR1220P622D	Metal	6.2K ohms
R18	ERJ6GEYJ103	Carbon	10K ohms 1/10W
R19	ERJ6GEYJ512	Carbon	5.1K ohms 1/10W
R20	YF2116124GT	Carbon	120K ohms 1/10W
R21,22	ERJ14YJ114	Carbon	110K ohms 1/4W
R23	ERJ6GEYJ363	Carbon	36K ohms 1/10W
R30	ERJ6GEY0R00	Carbon	0 ohms 1/10W
R31,32	ERJ8GCS0R00	Carbon	0 ohms 1/10W
C1 ⚠	ECQU2A333MV	Plastic	0.033 µF
C2-4 ⚠	ECKDRS222ME	Ceramic	2200 pF
C5	RJ3400V100M	Electrolytic	10 µF
C6	ECA1VFQ270	Electrolytic	27 µF 35V
C7	YW400105FZ	Ceramic	1 µF
C8	YF400681CHJT	Ceramic	680 pF
C9	YF400104FZT	Ceramic	0.1 µF
C10	ECEA1HGE3R3	Electrolytic	3.3 µF 50V
C11	YF400103XKT	Ceramic	0.01 µF
C12	YF400562XKT	Ceramic	5600 pF

REF.NO.		PART NO.	DESCRIPTION	
C13		YF400104FZT	Ceramic	0.1 µF
C14,15		ECA1CFQ271	Electrolytic	270 µF 16V
C16		ECA1CFQ121	Electrolytic	120 µF 16V
C17		YF400104FZT	Ceramic	0.1 µF
C18,19		ECKDRS332ME	Ceramic	3300 pF
C20		ECQU2A563MT	Plastic	
L1	⚠	ELF23F215A	Coil	
L2		YWPC7330K	Coil	
T1	⚠	YWPC19HWA9	Power Transformer	
CN1		YWB2P3VH	2-pin Connector	
CN2		YW526630610	Connector	
E1,2		S-N5057	Fuse Holder	
E3,4		YW851040	Insulator	
M26		YWV2HA1169A4	Shield Parts	
M27		YWV2PA0612A4	Insulator	
M28		YWV1KA0181A4	Washer	
M29		YWV7DA0374B4	Heat Sink	
M30		YWV2PA0613A4	Insulator	

DRIVE BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB2 (RTL)	YWVBP51EKB2A	Printed Circuit Board Assy	
IC1	MN3112SA	IC	
IC2	YWTC74VC04FS	IC	
IC3	YWC5023068E1	IC	
IC4	NN2038FAQ	IC	
IC5	YWC5020074E1	IC	
IC6	YWNJM2406F	IC	
IC7	TC74AC08FSL	IC	
IC8	YWTC7S32F	IC	
Q1,2	UMZ1	Transistor	
Q3	2SC4081	Transistor	
Q4	2SC4617	Transistor	
Q5	2SD1819-QRS	Transistor	
Q6	2SC4617	Transistor	
Q7,8	2SC4619	Transistor	
Q9	2SC4617	Transistor	
Q10,11	2SB1218A-QR	Transistor	
Q12,13	2SA1774	Transistor	
D1-4	MA729	Diode	
D5	MA159	Diode	
D6	MA112	Diode	
TH93	L311F202J402	Thermistor	
R1	ERJ3GEYJ122	Carbon	1.2K ohms 1/16W
R2	ERJ3GEYJ271	Carbon	270 ohms 1/16W
R3	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R4	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R5,7	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R8	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R9	ERJ3GEYJ102	Carbon	1K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R10	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R11	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R13	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R14	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R15	ERJ3GEYJ432	Carbon	4.3K ohms 1/16W
R16	ERJ3GEYJ154	Carbon	150K ohms 1/16W
R17	ERJ3GEYJ432	Carbon	4.3K ohms 1/16W
R18	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R19	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R20	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R21	ERJ3GEYJ124	Carbon	120K ohms 1/16W
R22	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R23	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R24	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R26,27	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R29	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R30	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R31,32	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R33	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R34	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R35	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R36,37	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R39	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R41	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R42	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R43,44	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R45	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R46	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R47,48	ERJ3GEYJ821	Carbon	820 ohms 1/16W
R50	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R51,52	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R53	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R54-57	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R58	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R60	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R61	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R62	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R63	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R64	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R65	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R66	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R67	ERJ6GEYJ202	Carbon	2K ohms 1/10W
R68,70	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R71	ERJ3GEYJ751	Carbon	750 ohms 1/16W
R73	ERJ3GEYJ362	Carbon	3.6K ohms 1/16W
R75	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R76	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R77	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R78	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R79	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R80	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R82	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R83,84	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R85	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R86	ERJ3GEYJ100	Carbon	10 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R87,88	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R89	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R90	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R91	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R92	ERJ8GEYJ750	Carbon	75 ohms 1/8W
R94,95	ERJ3RHD102V	Metal	1K ohms 1/16W
R96	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R98	ERJ3GEYJ560	Carbon	56 ohms 1/16W
R99	ERJ3GEYJ820	Carbon	82 ohms 1/16W
R100,102	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R103	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R105	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R112	ERJ3GEYJ823	Carbon	82K ohms 1/16W
R113,114	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R115,116	ERJ6GEY0R00	Carbon	0 ohms 1/10W
R501	ERJ6GEYJ101	Carbon	100 ohms 1/10W
R502-504	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R602	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R603	ERJ3GEYJ751	Carbon	750 ohms 1/16W
C1	YW5X103K5VB	Ceramic	0.01 μF
C2	YW5X102K5VB	Ceramic	1000 pF
C4	YW5X102K5VB	Ceramic	1000 pF
C5	YW5F104Z2VB	Ceramic	0.1 μF
C7	YW5F104Z2VB	Ceramic	0.1 μF
C8	YW5F104Z2VB	Ceramic	0.1 μF
C9	YW5F473Z2VB	Ceramic	0.047 μF
C10	YW5X222K5VB	Ceramic	2200 pF
C11	YW5CH471J5VB	Ceramic	470 pF
C12-15	YW5F104Z2VB	Ceramic	0.1 μF
C16	YW5CH180J5VB	Ceramic	18 pF
C17-21	YW5F104Z2VB	Ceramic	0.1 μF
C22	YW5X102K5VB	Ceramic	1000 pF
C23	YW5CH471J5VB	Ceramic	470 pF
C24	YW5F104Z2VB	Ceramic	0.1 μF
C25	YW5CH101J5VB	Ceramic	100 pF
C26	YW400105FZ	Ceramic	1 μF
C27	YF400104FZT	Ceramic	0.1 μF
C28	YF400224FZT	Ceramic	0.22 μF
C29,30	YW400105FZ	Ceramic	1 μF
C31-34	YF400104FZT	Ceramic	0.1 μF
C35	EEVHB1E4R7R	Electrolytic	4.7 μF 25V
C36	EEVHB1C100R	Electrolytic	10 μF 16V
C37	EEVHB1C470P	Electrolytic	47 μF 16V
C38	EEVHB1E4R7R	Electrolytic	4.7 μF 25V
C39	EEVHB1E330P	Electrolytic	33 μF 25V
C40	ECST1ED226ZR	Tantalum	22 μF 25V
C41	EEVHB1C470P	Electrolytic	47 μF 16V
C42	EEVHB1C220R	Electrolytic	22 μF 16V
C43	ECST1ED226ZR	Tantalum	22 μF 25V
C44	EEVHB1C220R	Electrolytic	22 μF 16V
C45	EEVHB0J101P	Electrolytic	100 μF 6.3V
C46	EEVHB1C100R	Electrolytic	10 μF 16V
C47	EEVHP1H1R0R	Electrolytic	1 μF 50V
C48	TAJA105M016	Electrolytic	1 μF 16V
C49,50	ECST1AD476ZR	Tantalum	47 μF 10V

REF.NO.	PART NO.	DESCRIPTION	
C51,52	ECST1AX106ZR	Tantalum	10 μF 10V
C53	TAJA105M016	Tantalum	1 μF 16V
C54	ECST1AD476ZR	Tantalum	47 μF 10V
C55	ECST1AX106ZR	Tantalum	10 μF 10V
C56	ECST0JY106ZR	Tantalum	10 μF 6.3V
C57	TAJA105M016	Tantalum	1 μF 16V
C58	ECST1AD476ZR	Tantalum	47 μF 10V
C60	YW5CH820J5VB	Ceramic	82 pF
C61	YF400104FZT	Ceramic	0.1 μF
C62	ECST1AX106ZR	Tantalum	10 μF 10V
C63	YW5F104Z2VB	Ceramic	0.1 μF
C64,65	YW5X471K5VB	Ceramic	470 pF
L1	ELJFC101KB	Coil	100 μH
L2-6	ELJFC8R2MF	Coil	8.2 μH
L7	ELJSC330KB	Coil	
L9,10	ELJSC101KB	Coil	
L23	ELJFB101KB	Coil	
CF1,2	YWH50ACB20T	LC Filter	
CF3	NFM41R00C221	Filter	
CF4	YWCY4W618	Filter	

DIGITAL BOARD

PCB3 (RTL)	YWVBP51EKC2A	Printed Circuit Board Assy
IC1	YWMC14053BF	IC
IC2	MN67351	IC
IC3	YWL7A1220	IC
IC4,5	MN4792S	IC
IC6	YWL7A1219	IC
IC7	MB90077PF104	IC
IC8	YWBR9020FE1	IC
IC9	YWMB88346BEF	IC
IC10	YWTMP90C3429	IC
IC11	MN13821	IC
IC12	YWTC7S66FUL	IC
Q1	2SK106945	FET
Q2	2SK106945	FET
Q3	2SC4619	Transistor
Q4	2SC4617	Transistor
Q5	2SA1774	Transistor
D1	MA729	Diode
D2	YWDA121	Diode
D3,4	YWHVU359TRF	Diode
D5-7	YWDA221	Diode

REF.NO.	PART NO.	DESCRIPTION	
R1	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R2,3	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R4	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R5,6	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R7	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R8-14	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R15	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R16	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R17	ERJ3GEYJ154	Carbon	150K ohms 1/16W
R18	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R19	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R20	ERJ3GEYJ183	Carbon	18K ohms 1/16W
R21	ERJ3GEYJ362	Carbon	3.6K ohms 1/16W
R22	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R23	ERJ3GEYJ361	Carbon	360 ohms 1/16W
R24,25	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R26	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R27	ERJ3GEYJ201	Carbon	200 ohms 1/16W
R28	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R30,31	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R34-36	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R37	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R38	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R39-41	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R43	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R44	ERJ6GEYJ911	Carbon	910 ohms 1/10W
R45,46	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R47	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R48-50	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R51	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R52	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R53	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R54,56	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R57	ERJ3GEYJ623	Carbon	62K ohms 1/16W
R58	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R59	ERJ3GEYJ273	Carbon	27K ohms 1/16W
R60	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R64,66	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R67,69	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R70,71	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R73,74	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R75	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R78,79	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R80	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R81-84	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R86	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R87,88	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R90	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R91,92	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R93	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R94,95	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R96,97	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R98	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R99	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R100	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R101	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R102	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R103	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R104	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R105-112	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R113	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R114	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R115	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R116	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R117	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R118	ERJ6GEY0R00	Carbon	1 ohms 1/10W
R119	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R121	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R122	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R123	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R125,126	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R127	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R500	ERJ6GEYJ102	Carbon	1K ohms 1/10W
C1	YW5X392K5VB	Ceramic	3900 pF
C2,3	YW5CH100J5VB	Ceramic	10 pF
C4	YW5CH620J5VB	Ceramic	62 pF
C5	YW5F104Z2VB	Ceramic	0.1 µF
C6	YW5CH620J5VB	Ceramic	62 pF
C9	YW5CH470J5VB	Ceramic	47 pF
C12,13	YW5F104Z2VB	Ceramic	0.1 µF
C15	YW5X103K5VB	Ceramic	0.01 µF
C16-21	YW5F104Z2VB	Ceramic	0.1 µF
C23-36	YW5F104Z2VB	Ceramic	0.1 µF
C37	YW5CH120J5VB	Ceramic	12 pF
C39	YW5F104Z2VB	Ceramic	0.1 µF
C40,41	YW5CH470J5VB	Ceramic	47 pF
C42	YW5F104Z2VB	Ceramic	0.1 µF
C43	YF400104FZT	Ceramic	0.1 µF
C44	YF400104FZT	Ceramic	0.1 µF
C45	YW400105FZ	Ceramic	1 µF
C46	EEVHB1H2R2R	Electrolytic	2.2 µF 50V
C47	EEVHB1H1R0R	Electrolytic	1 µF 50V
C48-51	ECST1AX106ZR	Tantalum	10 µF 10V
C52	TAJA105M016	Electrolytic	1 µF 16V
C53-57	ECST1AX106ZR	Tantalum	10 µF 10V
C58	YW5CH220J5VB	Ceramic	22 pF
C59	YW5F104Z2VB	Ceramic	0.1 µF
C500	ECST1AD476ZR	Electrolytic	47 µF 10V
L1	EIC4EJ010E	Coil	1 µH
L2-8	ELJFC8R2MF	Coil	8.2 µH
L17	ELJFB101KB	Coil	100 µH
X1	YWDX28R375	Crystal Oscillator	
X2	EF0V8004E0A	Crystal Oscillator	
CF3	NFM41R00C221	Filter	
E1	YWV1KA1012B4	Earth Washer	
TP1	YWRCT2125TPV	Test- Pin	
CN1,2	YW51763136	26-pin Connector	

ALC BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB4 (RTL)	YWVBP51PKY5A	Printed Circuit Board Assy
L1	YWNL251R0J	Coil 1 µH
L2	YWBLM21A05PT	Coil
L3,4	YWNL251R0J	Coil 1 µH
CN1	AXN420330P	20-pin Connector
CN2	YFD4151N200	4-pin Connector
CN3	YW525881890	18-pin Connector

CONNECTOR BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB5 (RTL)	YWVBP51PKB4A	Printed Circuit Board Assy
CN1	YW525882090	20--pin Connector

REAR BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB6 (RTL)	YWVBP51PKC4A	Printed Circuit Board Assy
IC7	YWMB3775PFV	IC
Q2,3	2SB766A-QR	Transistor
D1,2	YWSC80206L	Diode
D3	LN28RPPN	LED
R1	ERJ3GEYJ751	Carbon 750 ohms 1/16W
R7	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R8	ERJ3GEYJ750	Carbon 75 ohms 1/16W
R134	ERJ3GEYJ333	Carbon 33K ohms 1/16W
R135	ERJ3GEYJ561	Carbon 560 ohms 1/16W
R136	ERJ3GEYJ682	Carbon 6.8K ohms 1/16W
R137	YW2116182JT	Carbon 1.8K ohms 1/10W
R138	ERJ3GEYJ163	Carbon 16K ohms 1/16W
R139	ERJ3GEYJ333	Carbon 33K ohms 1/16W
R140	YW2116182JT	Carbon 1.8K ohms 1/10W
R141	ERJ3GEYJ163	Carbon 16K ohms 1/16W
R142	ERJ3GEYJ561	Carbon 560 ohms 1/16W
R168	ERJ3RHD622V	Metal 6.2K ohms 1/16W
R169	ERJ3RHD183V	Metal 18K ohms 1/16W
R170	ERJ3RHD682V	Metal 6.8K ohms 1/16W
R171	ERJ3RHD392V	Metal 3.9K ohms 1/16W
R184,185	YF2116112JT	Carbon 1.1K ohms 1/10W
C1	YW5F104Z2VB	Ceramic 0.1 µF
C37	YW5CH331J5VB	Ceramic 330 pF
C38	TAJA105M016	Electrolytic 1 µF 16V
C39,40	YW5F104Z2VB	Ceramic 0.1 µF

REF.NO.	PART NO.	DESCRIPTION
C41	ECST1VY104	Electrolytic 0.1 µF 35V
C42	YW5X103K5VB	Ceramic 0.01 µF
C68	ECST0JY475	Electrolytic 4.7 µF 6.3V
C69	ECGC0JB330R	Semiconductor 33 µF 6.3V
C70	ECGC1BA4R7R	Semiconductor 4.7 µF 10V
C71	ECST0JY685	Electrolytic
C72	ECGC0JB330R	Semiconductor 33 µF 6.3V
C97	YW5F104Z2VB	Ceramic 0.1 µF
L3,4	YWCDR63220MC	Coil
L16	YWCDR63220MC	Coil
SW1-5	EVQPJX05M	Push Switch
SW6	YWKSD02S	Slide Switch
CN2	YW533910690	Connector
M25	YWLH53	LED Spacer

ACCESSORY PARTS/PACKAGING PARTS

REF.NO.	PART NO.	DESCRIPTION
CN110	YFE4191J100	ALC Lens Connector
M51	YWV8QA4112AN	Operating Instructions
M52	YWV7SA0942A4	Caution Label for WV-BP510/BG
M53	YWT050803	Polyethylene Bag for ALC Lens Connector
M54	YWT20X35C03	Polyethylene Bag
M55	YWV9CA3095AN	Packaging Assy for WV-BP510/A
	YWV9CA3093AN	Packaging Assy for WV-BP510/B
	YWV9CA3094AN	Packaging Assy for WV-BP510/G
M56	YWV8FA0201A4	Packaging Label for WV-BP510/B

CCTV CAMERA WV-BP514

MISCELLANEOUS

REF.NO.	PART NO.	DESCRIPTION
FB101	YWCP210J1B	Flexible Board
F1	XBA2C20ET0A	Current Fuse 2A 250V
CN101,102	YWP2270	BNC Connector
E102	YW840522	Insulator Cover for Fuse
M1	YWBC-2B	Body Cap
M2	YWV3FA0178A3	FB Control Ring
M3	YWV5WG1584A4	Front Side Panel
M4	YWV5BA0128A2	Front Escutcheon
M5	YWVBP510PA2A	Head Optical Assy
M6	YWV4JA0479A4	Spring Plate
M7	YWV2CA0386A4	Hold Plate
M8	YWV4JA0262A4	Coil Spring
M9	YWV2SA2640A3	Mounting Angle for Front
M10	YWV1EB0127A4	Special Screw
M11	YWV1EA0128A4	Special Screw
M12	YWV5EA1363A2	Upper Cover
M13	YWV2HA1168A3	Shield Angle
M16	YWV2KA0874A2	Bottom Cover
M17	YWV2TB0333A3	Mounting Bracket
M18	YWV1KA0128A4	Washer
M19	YWV5BA0121A3	Rear Escutcheon
M20	YWV2SA2642A3	Mounting Angle
M21	YWV5WA1679A4	Rear Panel
M23	YWV5RA0438A3	Knob
M24	YWV7MA0443A4	Fuse Caution Label
M31	YWV7DA0401A4	Heat Sink
M33	YWV7SA3071A4	Model Label
M34	YWV7MA0413A4	Safety Label
M35	YWV7MA0412A4	Fuse Change Label
M36	YWV7QA4151A4	Main Label
M37	YFV2NA0084A4	Spacer
M38	YWV2PA0615A4	Insulator Sheet
M39	YWV5GA0171A4	Cap
M41	YWTC200T2X4A	Cool Cheet A
M42	YWTC300T2X2A	Cool Cheet B

POWER BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB1 (RTL)	YWVKYBP14P3A	Printed Circuit Board Assy	
IC1	YWFA5304S	IC	
IC2	YWTA76431S	IC	
Q1	2SK2182	FET	
Q2,3	YWPS2501-1KA	Transistor	
D1	YWD2SBA20	Diode	
D2	YWDAN217	Diode	
D3	YWSC2012	Diode	
D4	YWDTZ5.1	Diode	
D8	YWSC80209R	Diode	
VS1	ERZC07DK471U	ZNR	
R1	ERJ14YJ223	Carbon	22K ohms 1/4W
R2	YF2116220JT	Carbon	22 ohms 1/10W
R3	YF2116184JT	Carbon	180K ohms 1/10W
R4	YF2116220JT	Carbon	22 ohms 1/10W
R5	ERJ6GEYJ153	Carbon	15K ohms 1/10W
R6	ERJ6GEYJ202	Carbon	2K ohms 1/10W
R7	ERJ6GEYJ221	Carbon	220 ohms 1/10W
R8	ERJ14YJR51	Carbon	0.51 ohms 1/4W
R9,10	ERJ14YJ112	Carbon	1.1K ohms 1/4W
R11	YF2116152JT	Carbon	1.5K ohms 1/10W
R12	ERJ6GEYJ470	Carbon	47 ohms 1/10W
R13	ERJ6GEYJ102	Carbon	1K ohms 1/10W
R14	YWR1220P161D	Metal	160 ohms
R15	YWR1220P163D	Metal	16K ohms
R16	YF2116681JT	Carbon	680 ohms 1/10W
R17	YWR1220P622D	Metal	6.2K ohms
R18	ERJ6GEYJ103	Carbon	10K ohms 1/10W
R19	R1220P121D	Metal	120 ohms
R30	ERJ6GEY0R00	Carbon	1 ohms 1/10W
C1	ECQV1H474JZ	Plastic	0.047 µF 50V
C2,3	ECQM1103KZ	Plastic	0.01 µF
C5	ECEA1HGE331	Electrolytic	330 µF 50V
C6	ECA1VFQ270	Electrolytic	27 µF 35V
C7	YW400105FZ	Ceramic	1 µF
C8	YF400681CHJT	Ceramic	680 µF 50V
C9	YF400104FZT	Ceramic	0.1 µF
C10	ECEA1HGE3R3	Electrolytic	3.3 µF
C11	YF400104FZT	Ceramic	0.1 µF
C12	YF400103XKT	Ceramic	0.01 µF
C13	YW400105FZ	Ceramic	1 µF
C14,15	ECA1CFQ271	Electrolytic	270 µF 16V
C16	ECA1CFQ121	Electrolytic	120 µF 16V
C17	YF400104FZT	Ceramic	0.1 µF
C18	ECQM1103KZ	Plastic	0.01 µF
C20	ECQV1H104JZ	Plastic	0.1 µF 50V
L1	YWSU10H07040	Coil	
L2	YWPC7330K	Coil	33 µH
T1	ETS22BC125AC	Power Transformer	
CN1	YW526630810	8-pin Connector	
E1,2	S-N5057	Fuse Holder	
M28	YWV1KA0181A4	Washer	

DRIVE BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB2 (RTL)	YWVBP51EKB2A	Printed Circuit Board Assy	
IC1	MN3112SA	IC	
IC2	YWTC74VC04FS	IC	
IC3	YWC5023068E1	IC	
IC4	NN2038FAQ	IC	
IC5	YWC5020074E1	IC	
IC6	YWNJM2406F	IC	
IC7	TC74AC08FSL	IC	
IC8	YWTC7S32F	IC	
Q1,2	UMZ1	Transistor	
Q3	2SC4081	Transistor	
Q4	2SC4617	Transistor	
Q5	2SD1819-QRS	Transistor	
Q6	2SC4617	Transistor	
Q7,8	2SC4619	Transistor	
Q9	2SC4617	Transistor	
Q10,11	2SB1218A-QR	Transistor	
Q12,13	2SA1774	Transistor	
D1-4	MA729	Diode	
D5	MA159	Diode	
D6	MA112	Diode	
TH93	L311F202J402	Thermistor	
R1	ERJ3GEYJ122	Carbon	1.2K ohms 1/16W
R2	ERJ3GEYJ271	Carbon	270 ohms 1/16W
R3	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R4	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R5,7	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R8	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R9	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R10	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R11	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R13	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R14	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R15	ERJ3GEYJ432	Carbon	4.3K ohms 1/16W
R16	ERJ3GEYJ154	Carbon	150K ohms 1/16W
R17	ERJ3GEYJ432	Carbon	4.3K ohms 1/16W
R18	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R19	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R20	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R21	ERJ3GEYJ124	Carbon	120K ohms 1/16W
R22	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R23	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R24	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R26,27	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R29	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R30	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R31,32	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R33	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R34	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R35	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R36,37	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R39	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R41	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R42	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R43,44	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R45	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R46	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R47,48	ERJ3GEYJ821	Carbon	820 ohms 1/16W
R50	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R51,52	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R53	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R54-57	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R58	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R60	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R61	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R62	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R63	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R64	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R65	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R66	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R67	ERJ6GEYJ202	Carbon	2K ohms 1/10W
R68,70	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R71	ERJ3GEYJ751	Carbon	750 ohms 1/16W
R73	ERJ3GEYJ362	Carbon	3.6K ohms 1/16W
R75	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R76	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R77	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R78	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R79	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R80	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R82	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R83,84	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R85	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R86	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R87,88	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R89	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R90	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R91	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R92	ERJ8GEYJ750	Carbon	75 ohms 1/8W
R94,95	ERJ3RHD102V	Metal	1K ohms 1/16W
R96	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R98	ERJ3GEYJ560	Carbon	56 ohms 1/16W
R99	ERJ3GEYJ820	Carbon	82 ohms 1/16W
R100,102	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R103	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R105	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R112	ERJ3GEYJ823	Carbon	82K ohms 1/16W
R113,114	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R115,116	ERJ6GEY0R00	Carbon	0 ohms 1/10W
R501	ERJ6GEYJ101	Carbon	100 ohms 1/10W
R502-504	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R602	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R603	ERJ3GEYJ751	Carbon	750 ohms 1/16W
C1	YW5X103K5VB	Ceramic	0.01 µF

REF.NO.	PART NO.	DESCRIPTION	
C2	YW5X102K5VB	Ceramic	1000 pF
C4	YW5X102K5VB	Ceramic	1000 pF
C5	YW5F104Z2VB	Ceramic	0.1 µF
C7	YW5F104Z2VB	Ceramic	0.1 µF
C8	YW5F104Z2VB	Ceramic	0.1 µF
C9	YW5F473Z2VB	Ceramic	0.047 µF
C10	YW5X222K5VB	Ceramic	2200 pF
C11	YW5CH471J5VB	Ceramic	470 pF
C12-15	YW5F104Z2VB	Ceramic	0.1 µF
C16	YW5CH180J5VB	Ceramic	18 pF
C17-21	YW5F104Z2VB	Ceramic	0.1 µF
C22	YW5X102K5VB	Ceramic	1000 pF
C23	YW5CH471J5VB	Ceramic	470 pF
C24	YW5F104Z2VB	Ceramic	0.1 µF
C25	YW5CH101J5VB	Ceramic	100 pF
C26	YW400105FZ	Ceramic	1 µF
C27	YF400104FZT	Ceramic	0.1 µF
C28	YF400224FZT	Ceramic	0.22 µF
C29,30	YW400105FZ	Ceramic	1 µF
C31-34	YF400104FZT	Ceramic	0.1 µF
C35	EEVHB1E4R7R	Electrolytic	4.7 µF 25V
C36	EEVHB1C100R	Electrolytic	10 µF 16V
C37	EEVHB1C470P	Electrolytic	47 µF 16V
C38	EEVHB1E4R7R	Electrolytic	4.7 µF 25V
C39	EEVHB1E330P	Electrolytic	33 µF 25V
C40	ECST1ED226ZR	Tantalum	22 µF 25V
C41	EEVHB1C470P	Electrolytic	47 µF 16V
C42	EEVHB1C220R	Electrolytic	22 µF 16V
C43	ECST1ED226ZR	Tantalum	22 µF 25V
C44	EEVHB1C220R	Electrolytic	22 µF 16V
C45	EEVHB0J101P	Electrolytic	100 µF 6.3V
C46	EEVHB1C100R	Electrolytic	10 µF 16V
C47	EEVHP1H1R0R	Electrolytic	1 µF 50V
C48	TAJA105M016	Electrolytic	1 µF 16V
C49,50	ECST1AD476ZR	Tantalum	47 µF 10V
C51,52	ECST1AX106ZR	Tantalum	10 µF 10V
C53	TAJA105M016	Tantalum	1 µF 16V
C54	ECST1AD476ZR	Tantalum	47 µF 10V
C55	ECST1AX106ZR	Tantalum	10 µF 10V
C56	ECST0JY106ZR	Tantalum	10 µF 6.3V
C57	TAJA105M016	Tantalum	1 µF 16V
C58	ECST1AD476ZR	Tantalum	47 µF 10V
C60	YW5CH820J5VB	Ceramic	82 pF
C61	YF400104FZT	Ceramic	0.1 µF
C62	ECST1AX106ZR	Tantalum	10 µF 10V
C63	YW5F104Z2VB	Ceramic	0.1 µF
C64,65	YW5X471K5VB	Ceramic	470 pF
L1	ELJFC101KB	Coil	100 µH
L2-6	ELJFC8R2MF	Coil	8.2 µH
L7	ELJSC330KB	Coil	
L9,10	ELJSC101KB	Coil	
L23	ELJFB101KB	Coil	
CF1,2	YWH50ACB20T	LC Filter	
CF3	NFM41R00C221	Filter	
CF4	YWCY4W618	Filter	

REF.NO.	PART NO.	DESCRIPTION
CF5	ELB4B532	Filter
CN1	YW533071891	18-pin Connector
CN2,3	YW21775946	26-pin -pin Connector
CN4	YW31756316	6-pin Connector
CN5	YW533072091	20-pin Connector
CN6	YW31756316	6-pin Connector
TP1-4	YWRCT2125TPV	Test Point

DIGITAL BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB3 (RTL)	YWVBP51EKC2A	Printed Circuit Board Assy	
IC1	YWMC14053BF	IC	
IC2	MN67351	IC	
IC3	YWL7A1220	IC	
IC4,5	MN4792S	IC	
IC6	YWL7A1219	IC	
IC7	MB90077PF104	IC	
IC8	YWBR9020FE1	IC	
IC9	YWMB88346BEF	IC	
IC10	YWTMP90C3429	IC	
IC11	MN13821	IC	
IC12	YWTC7S66FUL	IC	
Q1	2SK106945	FET	
Q2	2SK106945	FET	
Q3	2SC4619	Transistor	
Q4	2SC4617	Transistor	
Q5	2SA1774	Transistor	
D1	MA729	Diode	
D2	YWDA121	Diode	
D3,4	YWHVU359TRF	Diode	
D5-7	YWDA221	Diode	
R1	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R2,3	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R4	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R5,6	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R7	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R8-14	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R15	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R16	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R17	ERJ3GEYJ154	Carbon	150K ohms 1/16W
R18	ERJ3GEYJ302	Carbon	3K ohms 1/16W
R19	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R20	ERJ3GEYJ183	Carbon	18K ohms 1/16W
R21	ERJ3GEYJ362	Carbon	3.6K ohms 1/16W
R22	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R23	ERJ3GEYJ361	Carbon	360 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R24,25	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R26	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R27	ERJ3GEYJ201	Carbon	200 ohms 1/16W
R28	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R30,31	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R34-36	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R37	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R38	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R39-41	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R43	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R44	ERJ6GEYJ911	Carbon	910 ohms 1/10W
R45,46	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R47	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R48-50	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R51	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R52	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R53	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R54,56	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R57	ERJ3GEYJ623	Carbon	62K ohms 1/16W
R58	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R59	ERJ3GEYJ273	Carbon	27K ohms 1/16W
R60	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R64,66	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R67,69	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R70,71	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R73,74	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R75	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R78,79	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R80	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R81-84	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R86	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R87,88	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R90	ERJ3GEYJ162	Carbon	1.6K ohms 1/16W
R91,92	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R93	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R94,95	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R96,97	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R98	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R99	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R100	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R101	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R102	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R103	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R104	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R105-112	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R113	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R114	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R115	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R116	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R117	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R118	ERJ6GEY0R00	Carbon	1 ohms 1/10W
R119	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R121	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R122	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R123	ERJ3GEYJ103	Carbon	10K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R125,126	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R127	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R500	ERJ6GEYJ102	Carbon	1K ohms 1/10W
C1	YW5X392K5VB	Ceramic	3900 pF
C2,3	YW5CH100J5VB	Ceramic	10 pF
C4	YW5CH620J5VB	Ceramic	62 pF
C5	YW5F104Z2VB	Ceramic	0.1 µF
C6	YW5CH620J5VB	Ceramic	62 pF
C9	YW5CH470J5VB	Ceramic	47 pF
C12,13	YW5F104Z2VB	Ceramic	0.1 µF
C15	YW5X103K5VB	Ceramic	0.01 µF
C16-21	YW5F104Z2VB	Ceramic	0.1 µF
C23-36	YW5F104Z2VB	Ceramic	0.1 µF
C37	YW5CH120J5VB	Ceramic	12 pF
C39	YW5F104Z2VB	Ceramic	0.1 µF
C40,41	YW5CH470J5VB	Ceramic	47 pF
C42	YW5F104Z2VB	Ceramic	0.1 µF
C43	YF400104FZT	Ceramic	0.1 µF
C44	YF400104FZT	Ceramic	0.1 µF
C45	YW400105FZ	Ceramic	1 µF
C46	EEVHB1H2R2R	Electrolytic	2.2 µF 50V
C47	EEVHB1H1R0R	Electrolytic	1 µF 50V
C48-51	ECST1AX106ZR	Tantalum	10 µF 10V
C52	TAJA105M016	Electrolytic	1 µF 16V
C53-57	ECST1AX106ZR	Tantalum	10 µF 10V
C58	YW5CH220J5VB	Ceramic	22 pF
C59	YW5F104Z2VB	Ceramic	0.1 µF
C500	ECST1AD476ZR	Electrolytic	47 µF 10V
L1	EIC4EJ010E	Coil	1 µH
L2-8	ELJFC8R2MF	Coil	8.2 µH
L17	ELJFB101KB	Coil	100 µH
X1	YWDX28R375	Crystal Oscillator	
X2	EF0V8004E0A	Crystal Oscillator	
CF3	NFM41R00C221	Filter	
E1	YWV1KA1012B4	Earth Washer	
TP1	YWRCT2125TPV	Test- Pin	
CN1,2	YW51763136	26-pin Connector	

ALC BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB4 (RTL)	YWVBP51PKY5A	Printed Circuit Board Assy	
L1	YWNL251R0J	Coil	1 µH
L2	YWBLM21A05PT	Coil	
L3,4	YWNL251R0J	Coil	1 µH
CN1	AXN420330P	20-pin Connector	
CN2	YFD4151N200	4-pin Connector	
CN3	YW525881890	18-pin Connector	

CONNECTOR BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB5 (RTL)	YWVBP54PKB4A	Printed Circuit Board Assy
CN1	YW525882090	20--pin Connector

REAR BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB6 (RTL)	YWVBP54PKC4A	Printed Circuit Board Assy
IC7	YWMB3775PFV	IC
Q2,3	2SB766A-QR	Transistor
D1,2	YWSC80206L	Diode
D3	LN28RPPN	LED
R1	ERJ3GEYJ751	Carbon 750 ohms 1/16W
R7	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R8	ERJ3GEYJ750	Carbon 75 ohms 1/16W
R134	ERJ3GEYJ333	Carbon 33K ohms 1/16W
R135	ERJ3GEYJ561	Carbon 560 ohms 1/16W
R136	ERJ3GEYJ682	Carbon 6.8K ohms 1/16W
R137	YW2116182JT	Carbon 1.8K ohms 1/10W
R138	ERJ3GEYJ163	Carbon 16K ohms 1/16W
R139	ERJ3GEYJ333	Carbon 33K ohms 1/16W
R140	YW2116182JT	Carbon 1.8K ohms 1/10W
R141	ERJ3GEYJ163	Carbon 16K ohms 1/16W
R142	ERJ3GEYJ561	Carbon 560 ohms 1/16W
R168	ERJ3RHD622V	Metal 6.2K ohms 1/16W
R169	ERJ3RHD183V	Metal 18K ohms 1/16W
R170	ERJ3RHD682V	Metal 6.8K ohms 1/16W
R171	ERJ3RHD392V	Metal 3.9K ohms 1/16W
R184,185	YF2116112JT	Carbon 1.1K ohms 1/10W
C1	YW5F104Z2VB	Ceramic 0.1 μF
C2,3	YF400222XKT	Ceramic 2200 pF
C37	YW5CH331J5VB	Ceramic 330 pF
C38	TAJA105M016	Electrolytic Capacit 1 μF 16V
C39,40	YW5F104Z2VB	Ceramic 0.1 μF
C41	ECST1VY104	Electrolytic 0.1 μF 35V
C42	YW5X103K5VB	Ceramic
C68	ECST0JY475	Electrolytic 4.7 μF 6.3V
C69	ECGC0JB330R	Semiconductor 33 μF 6.3V
C70	ECGC1BA4R7R	Semiconductor 4.7 μF 12.5V
C71	ECST0JY685	Electrolytic 6.8 μF 6.3V
C72	ECGC0JB330R	Semiconductor 33 μF 6.3V
C97	YW5F104Z2VB	Ceramic 0.1 μF
C98	YWU212F224ZT	Ceramic 0.22 μF
L3,4	YWCDR63220MC	Coil
L16	YWCDR63220MC	Coil
SW1-5	EVQPJX05M	Push Switch
SW6	YWKSD02S	Slide Switch

REF.NO.	PART NO.	DESCRIPTION
CN2	YW533910890	8-pin Connector
E4	YWT6746	Terminal
M25	YWLH53	LED Spacer

ACCESSORY PARTS/PACKAGING PARTS

REF.NO.	PART NO.	DESCRIPTION
CN110	YFE4191J100	Connector
M51	YWV8QA4112AN	Operating Instructions
M52	YWV7SA0942A4	Caution Label
M53	YWT050803	Polyethylene Bag
M54	YWT20X35C03	Polyethylene Bag
M55	YWV9CA3096AN	Packaging Assy

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